
TRANSACTIONS
OF A
SOCIETY
FOR
THE IMPROVEMENT
OF
MEDICAL AND CHIRURGICAL
KNOWLEDGE.

LONDON,

1812.



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ILLUSTRATED WITH COPPER-PLATES.

VOL. III.

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1812.

TRANSACTIONS

SOCIETY

THE IMPROVEMENT

MEDICAL AND SURGICAL



ILLUSTRATED WITH CUTS

BY

VOL. II.

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JOHN W. BARNARD, 10, BLOOMSBURY SQUARE, LONDON, W.C.

1862

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TRANSACTIONS, &c.

- I. *Case of a Disease of the Chest from a leaden Shot accidentally passing through the Glottis into the Trachea.* By JOHN MERVIN NOOTH, M. D. F. R. S. and Inspector of Hospitals. Read January 3, 1804.

IN the year 1797, whilst I was on duty at Quebec, I became subject to an asthmatic affection, that came on almost every day for some months. It was at first very slight, there being only a sense of weight and fulness on the left side of my breast, together with some little difficulty in breathing. These symptoms attacked me sometimes in the day, sometimes in the night, and frequently continued for two or three hours.

The attacks were, for some months, very uncertain as to time and continuance, and during that time my general health was very

little affected. My appetite and strength continued nearly as usual, until I was unfortunately exposed to causes that brought on a fever, which in a short time assumed the character of a double tertian.

This intermittent very soon diminished my strength and lessened my appetite, and seemed to augment the unpleasant feelings about my breast. When the attack came on, which was generally about the middle of the day, the sense of weight and of fulness in my breast was greatly increased, and my pulse, which was before perfectly regular, became very irregular. This irregularity for some weeks daily increased, and was at last so frequent, particularly during the febrile paroxysm, as to occasion apprehensions for my life. The feelings about my chest were at this time very distressing. A peculiar sensation about my heart always preceded the irregularity in my pulse, and very often impressed me with an idea of immediate dissolution.

To remove the intermittent, and to alleviate the unpleasant symptoms which accompanied it, a great variety of medicines

was employed, but without any permanent advantage. It was therefore at last proposed, that I should return to Europe, to try what the change of climate might produce.

Having obtained leave of absence, I embarked about the end of July, 1799, for Great Britain. On the passage I was daily attacked by the intermittent fever. It came on regularly every day about eleven o'clock in the forenoon, and was always attended with the usual distress about the breast, and the same irregularity in the pulse. These symptoms did not appear to be increased or diminished by the voyage, and the duration of the febrile fit was nearly the same, as before I embarked.

Soon after my arrival in London, as the intermittent fever went off in general early in the afternoon, I went to the Theatre. The evening was remarkably warm, and the house was unusually crowded. These circumstances rendered my respiration more than usually difficult, and produced a greater degree of irregularity in my pulse than I had ever before experienced. To these symptoms was superadded a more troublesome cough

than had ever before occurred; and at last such a difficulty of breathing came on as obliged me to retire.

On arriving at my lodgings, I found myself so extremely ill, that I went to bed with very little expectation of living till the next morning.

During the night, my respiration was very laborious, and my cough so extremely troublesome, that I slept very little. In the morning, when I attempted to get out of bed, the cough came on with such violence, that after many severe fits of it, I was, through fatigue, obliged to throw myself on the bed with my face downwards. In this position I remained some time, coughing occasionally with great violence, and spitting from time to time a considerable quantity of phlegm into my handkerchief.

Perceiving accidentally that there was something very hard in the handkerchief, I was induced to examine it, and dividing it with my knife, I found it was a large shot, about the eighth of an inch in diameter.

As the cough, soon after I had expectorated this foreign body, was somewhat less

frequent and less violent, I began to dress myself, and in a short time became so easy that I sat down to breakfast.

The cough, however, remained for some days, and the quantity of mucus discharged was very considerable; but in a short time both the cough and spitting were greatly lessened, and in about ten or twelve days disappeared altogether. The sense of weight and fulness in my chest likewise went off, and my pulse became regular.

From that time to the present I have felt no uneasiness similar to what I experienced before the discharge of the shot; but the intermittent fever, which had greatly aggravated my complaints, still continued to return daily, and was not removed until recourse was had to arsenic about fifteen months afterwards.

Reflecting on the circumstances which have been related, it occurred to me, that the complaints in my chest must have arisen from the shot, and that this substance must have passed unperceived through the glottis in the act of drinking. I can indeed now recollect, that previously to my experiencing

any uneasiness in my chest, I was one day seized, immediately after drinking hastily the last glass of a bottle of wine, with a convulsive cough, which I at the time considered to be occasioned by a drop or two of the wine, that had, as it is usually said, gone the wrong way; and that for some days after the cough continued very troublesome.

Had the ejection of the shot from the trachea not taken place, I should never perhaps have recalled to mind the circumstances which I have just related. I am, however, now convinced, that my late pectoral complaints did arise from the accidental passing of a shot into the windpipe; and I shall always think it a very fortunate and a very extraordinary circumstance, that a case so serious as mine should terminate so favourably.

II. *On the Embalming of Dead Bodies.* By
 MATTHEW BAILLIE, M. D. F. R. S. *Fellow*
of the College of Physicians of London, and
Honorary Fellow of the College of Physi-
cians of Edinburgh. Read Nov. 6. 1804.

THE object of this Paper is to describe a method of embalming dead bodies, which shall effectually preserve them from decay, and which is more easy of execution than any that, as far as I know, has been practised by modern anatomists.

This operation is so seldom performed, that very few, I am persuaded, even of our best surgeons have arranged all the necessary processes of it in their own minds; and if they were required to perform it, they would be obliged to consider of some plan for the immediate occasion. A plan, thus hastily adopted, would most probably not be the best, would be productive of some delay, and be attended with unnecessary difficulty. I therefore thought, that it might be an object of some importance to surgeons to have laid

before them a regular method of embalming dead bodies, easy of execution, and which they may adopt, if they should ever be required to perform this operation.

In considering this subject, it is hardly possible to avoid looking back upon the methods of embalming practised by the Egyptians, as described by Greek writers. The only ancient authors, as far as I know, who have described the method of embalming among the Egyptians, are Herodotus, and Diodorus Siculus. They had both travelled into Egypt, and wrote at the interval of four hundred years from each other. The description of the method of embalming by Herodotus is more distinct and particular, than that by Diodorus. Herodotus has described three methods. Each of these had a fixed price; and they seem to have been accommodated to persons of different ranks or fortunes. The most complicated and expensive method of embalming is thus described by him.*

The embalmers remove the brain through

* Vide Tom. ii. p. 173.—Edit. Gronovii. Glasguae, 1761.

the nostrils, partly by a curved piece of iron, and partly by pouring in drugs. With a sharp Æthiopian stone they next make an opening into the abdomen, near the flank, and extract through this opening the intestines. These they clean, wash with palm wine, and then sprinkle with a powder composed of aromatic substances. They next fill the cavity of the abdomen with myrrh, cassia, and other odorous substances, but not with frank-incense, and sew up the body. They now salt the body in natron for seventy days, at the end of which time they wash it, and involve it in many folds of cotton besmeared with gum, which the Egyptians use as glue. The bodies so prepared are returned to the relations, who inclose them in wooden cases resembling the human form, which are placed upright, close to the wall, in an apartment appropriated for this purpose.

For persons in moderate circumstances, a cheaper mode of embalming was employed. No incision was made into the body, nor were any of the bowels extracted; but glysters, consisting of the oil of cedar, were thrown into the bowels by the anus, were

prevented from escaping, and were retained there for the time above mentioned, (viz. seventy days) during which the bodies were salted with natron.—The bowels were in this time corroded by the oil, and at the end of the period drawn out through the anus. The external flesh was wasted by the natron, so that the skin and bones only of the deceased remained; and in this state the bodies were restored to the relations.

There was a third method of embalming, much more simple and less expensive, which was accommodated to persons in low circumstances. This consisted in making some particular ablution of the bowels, and salting the body with natron for seventy days, at the end of which time it was sent back to the relations.

The account, which Diodorus Siculus has given of the art of embalming among the Egyptians, is very general, is in some measure confused, and differs in several essential circumstances from that of Herodotus.* It is in substance as follows. An opening was

* Vide lib. 1. sect. 91. Edit. Wesselingii. Amstelodami, 1746.

made by means of an Æthiopic stone into the side of the abdomen, and all the viscera were extracted through it, except the heart and the kidneys. These were washed with palm wine mixed with odorous substances. The body was also washed with palm wine, and then for more than thirty days was anointed with oil of cedar. The body was further preserved from decay by myrrh, cinnamon and other aromatic substances; after which it was restored to the relations. No mention is made of the extraction of the brain through the nostrils.

It would be vain, at present to enquire, whether these accounts be accurate, or to attempt to reconcile them to each other. In the course of four centuries, between the times of Herodotus and Diodorus Siculus, a considerable change might have taken place in the mode of embalming dead bodies; and in the lapse of two or three thousand years, the soft parts of bodies, which had been originally well preserved, may have mouldered away. If this effect has not taken place, these accounts must be considered as inaccurate; because, in the greater number of

mummies which have been examined in modern times, the bones only have been found. The account which has been given by both historians shews, that the Ægyptians had made considerable progress in the art of preserving dead bodies from decay; but it does not appear to have been founded upon any extensive knowledge of anatomy.

At the revival of learning, when the science of anatomy was still in a very rude state, it is not likely that anatomists would direct any part of their attention to the embalming of dead bodies. Their time was fully occupied in learning the structure of the grosser parts of the human body, and they had not even become acquainted with the art of making the most simple preparations. When anatomy, however, had attained to a considerable degree of perfection, and anatomists had advanced somewhat in the art of making preparations, it is highly probable, that they would attempt to embalm dead bodies. Ruysch is said to have so prepared dead bodies, that they seemed rather to be asleep than without life, and to have preserved them in this state. This could be

accomplished by no other process than that of embalming; but as he never could be prevailed upon to explain to his pupils even his method of making common preparations, it is not at all likely, that he would be more communicative about the art of embalming.

Among modern anatomists, I am persuaded, that there never was any fixed or regular method of embalming dead bodies, but that, when this operation was required to be performed, each anatomist followed a method of his own. Dr. Hunter used to explain, in his lectures, the method of embalming which he employed, an account of which I shall give before I take notice of another, which is as effectual with respect to the preservation of the body, and is much more easy in the execution.

According to Dr. Hunter's method, embalming is begun as soon after death as decency will permit. In the summer season, it should not be delayed beyond twelve hours, but in winter, it may be put off till twenty-four hours, after death. In all cases where a person dies suddenly who had before enjoyed good health, the body begins

very soon to putrefy, and putrefaction advances very rapidly; therefore, if the body of such a person is required to be embalmed, the operation should take place after a very short interval, *viz.* of not more than two or three hours after death.

The first operation is to fill the blood vessels with a fluid highly antiseptic, and so subtile as to penetrate into the minutest vessels of the body. For this purpose the essential oil of turpentine is employed, in which a small proportion of Venice turpentine has been dissolved. Vermillion is added to this fluid, in order to diffuse a florid colour over the skin. More or less of the florid colour is diffused in different cases, which depends upon circumstances that cannot always be ascertained. In order to fill the blood vessels with this fluid, an injecting pipe is inserted into one of the inguinal arteries, and the fluid thrown in by means of a common injecting syringe. The injection is continued, till the vessels of the skin shew that the antiseptic fluid has penetrated to them, and till there is great difficulty in throwing in more fluid. The body is then

allowed to remain for some hours undisturbed, that it may be more thoroughly impregnated with the antiseptic fluid. The cavities of the abdomen and thorax are now laid open, and their viscera taken out. The natural juices are then squeezed out from the body, and also from the viscera, by gentle pressure with the hands.

The blood vessels of the viscera are now to be injected a second time with the essential oil of turpentine and vermillion, by putting pipes into their principal arteries. Ligatures are then made upon them, and the whole surface of the viscera is well-washed with camphorated spirits of wine. In the same manner there is a second injection made of the blood vessels of the body, by means of a pipe inserted into the beginning of the aorta; and the inner surfaces of the thorax and abdomen are afterwards washed with camphorated spirits of wine. The viscera are now replaced in the thorax and abdomen. All the interstices between the viscera are next filled with a powder, composed of camphor, resin, and nitre, which powder is besprinkled with the essential oils of rosemary

and lavender. The cavities of the thorax and abdomen are then very closely sewn up.

The cavities which open upon the surface of the body, *viz.* the nostrils, the mouth and throat, the passages of the external ears, the rectum, and the vagina in women, are next filled with the powder above mentioned. The humours of the eyes are also let out, so that the eyes sink back into the sockets. Some powder is to be placed between the eyes and the eyelids, and the two eyelids are to be brought in contact with each other. The whole of the body is then rubbed over with the essential oils of rosemary and lavender, and it is afterwards placed upon a bed of Paris plaister, that the moisture which oozes from it may be absorbed.

At the distance of more than twenty years, since I heard Dr. Hunter explain his method of embalming, it is very possible that I may have forgotten some of the smaller circumstances which he mentioned; but I am sure that nothing has been omitted, upon which the success of the operation can at all depend.

This method of embalming is certainly effectual in preserving a human body from decay for any length of time; but it is extremely tedious, occupying many hours, and is attended with much unnecessary difficulty. In reflecting upon this subject more than twelve years ago, I thought it very possible, that a body might be embalmed without cutting out all the viscera, tying up their vessels, injecting them a second time, then tying up the remaining vessels of the body, and also making a second injection of them, which various processes constitute the great difficulty, and consume unnecessarily a great deal of time, in this method of embalming.

I then made an experiment of embalming the bodies of three children after a more simple method. In all of these bodies it succeeded perfectly. All of them are still in the most perfect preservation, although they were embalmed more than twelve years ago; and from their present appearance I conclude, that they may continue free from decay for any length of time.

These experiments, from motives of ease and convenience, were made upon children,

who either were still-born, or had died almost immediately after birth; but the same method of embalming will be effectual, whatever may be the size of the body.

An injecting pipe was put into the umbilical vein, and the blood vessels of the whole body were well filled with the antiseptic fluid formerly mentioned, consisting of essential oil of turpentine, with a small portion of Venice turpentine dissolved in it, and well charged with vermillion. Had the children been older, or had the experiment been made upon a full grown body, the injecting pipe would have been put into one of the inguinal arteries, and all the vessels of the body would have been injected from it. This will form the only difference between the method of embalming a child newly born, and that of embalming a person of any age, after the umbilical vein is obliterated. It ought to be remarked, however, that when the vessels of the body, generally, have been injected from one of the inguinal arteries, a ligature should be immediately made upon this artery above the pipe, and that the pipe should afterwards be taken out, and put again into

the same aperture of the artery, but directed towards the foot. The vessels of this limb should then be filled with the antiseptic fluid, a ligature should be made upon the artery under the pipe, and the pipe should be taken out. In this way the injection of the vessels of the body will be complete.

When the body is of such a size, as to be capable of being readily put into a tub of warm water, for an hour previous to the injection of its vessels, there will be an advantage in doing it; because the antiseptic fluid will penetrate into minuter vessels of the skin, and give it a more florid colour. This, however, is not at all necessary for the preservation of the body. After the body has been injected, it should remain at rest for an hour or two, that the fluid may have time to settle. The thorax and abdomen should then be laid open, exactly in the same manner as they are, when a body is examined for the purpose of discovering any morbid appearances in these two cavities.

An opening should next be made into the duodenum, about two or three inches distant from the pylorus, and a large injecting pipe

inserted into it, with its direction towards the stomach. Water should be thrown through this pipe by a syringe, so as to wash clean the stomach, the œsophagus, the pharynx, the mouth, and the nostrils. The pipe should then be taken out, inserted into the same opening in the duodenum, but directed towards the intestines. Water should then be thrown in to clean the small and the great intestines.

When this has been done, a ligature should be made upon the œsophagus at its upper extremity, and another ligature should be made upon the rectum, as low down in the pelvis as the reflexion of the peritonæum will allow. Camphorated spirits of wine should then be thrown in, by a pipe inserted into the opening in the duodenum, so as to distend moderately the small and the great intestines, the stomach, and the œsophagus. The pipe should now be withdrawn, and the opening in the duodenum closed by a strong ligature. A small opening should next be made in the trachea, almost immediately under the cricoid cartilage of the larynx; an injecting pipe should be put into it, and

the air-cells of the lungs should be moderately filled with camphorated spirits of wine. The pipe should then be withdrawn.

A ligature should next be made round the aorta, close to its origin, and the cavities of the heart should be laid open, for the reception of an antiseptic powder, the composition of which shall afterwards be described.

The urinary bladder should then be squeezed, so as to be completely emptied, and should be laid open at its fundus. When this has been done, the surface of all the viscera of the thorax and abdomen, together with their parietes, should be washed with camphorated spirits of wine. Then all the interstices of the different viscera of the thorax and abdomen should be filled with an antiseptic powder, consisting of camphor, white resin, and nitre, intimately mixed together. With this powder too the cavities of the heart and of the urinary bladder should be filled.* The proportion of these different

* In two of the children, I opened the head at the anterior fontanel, took out a portion of the brain, and filled the cavity with the antiseptic powder. In the third child I made no opening into the head at all, yet the head is perfectly preserved from decay. This operation is therefore unnecessary.

ingredients to each other is not of much importance, as in the three children which I embalmed, it was different in each. Two parts of camphor, one of resin, and one of nitre, will probably be as good a proportion as any other. Some essential oil of rosemary, or lavender, or both, may then be sprinkled upon the surface of the powder. The oil will give an agreeable odour, but is not necessary for the preservation of the body. The body should then be very closely sewn up.

The mouth, the nostrils, the passages of the external ears, the rectum, and the vagina, (if a female is embalmed) should be filled with the antiseptic powder already described. The humours of the eyes should next be let out, and the space between the eyes and the eyelids should be filled with the antiseptic powder; after which the two eyelids should be brought into close contact with each other. The body should then be rubbed over with some aromatic oil, as oil of rosemary or lavender. All the limbs and other parts are then to be put into the posture, in which they are to remain, upon a bed

of Paris plaister, or any other absorbing substance.

In this way the embalming is completed by a series of processes much more simple, more convenient, and less tedious, than in the method adopted by Dr. Hunter. — All the trouble of cutting out the various viscera, and injecting their vessels a second time, is avoided, while the body is effectually preserved from decay.

III. *An Account of a Person in whom the urinary Bladder is defective; and of a Contrivance, by means of which he has been enabled to obviate the disagreeable Consequences, that in similar Cases result from the perpetual involuntary Discharge of Urine.* By ALEXANDER P. BUCHAN, M.D.
 Read Dec. 4, 1804.

HAVING frequently heard of a person residing in the neighbourhood of Margate, in whom there was some extraordinary conformation of the external organs of generation, in the month of September, 1803, I accompanied Mr. R. Hunter, surgeon, who had occasionally attended him professionally, to the village of B——, where he resides. I was there introduced to J. P. about thirty years old, rather thin, of a slight make, and of a pale complexion. Though moderately active, his strength is unequal to the labours of agriculture, and he obtains a livelihood by an occupation of a sedentary kind.

A shyness of character, arising probably from his very secluded manner of life, rendered it no easy matter to overcome his objections to exposing his real situation. After making, however, as accurate an examination of the parts in question, as I was permitted to do, it seemed clear to me, that there existed in him a similar monstrosity to that which is related by Dr. Baillie, in the first volume of the Medical and Surgical Transactions.

Till of late the patient endeavoured to absorb the fluid, which perpetually trickled away, by means of flannel cloths and sponges. But the smell of the putrescent urine was so offensive, as to render it necessary to seclude himself almost wholly from society. About eight years ago, a young man, a native of Germany, as he informed me, who had heard of his case, and who himself had a similar conformation, paid him a visit. On comparison, their situations were found to be precisely the same. This person had been extremely desirous to get relief if possible. With this view he had visited various countries, to obtain the opi-

nions of medical men, and had also attended many anatomical lectures, in order to acquire an accurate knowledge of his own case. He had thus been enabled to construct a machine, which not only greatly alleviated the most distressing consequences of his situation, but rendered him capable of travelling, and of frequenting company without being offensive, and even without any thing particular being observed in his general behaviour. This contrivance he communicated to J. P., for which the latter expresses the greatest gratitude, as by means of it his life is rendered, as he says, comparatively comfortable. From being confined to almost total solitude, he is now enabled to leave his home, and to pass some weeks with his friends, without his misfortune being even suspected.

The following is a description of the apparatus. One part, resembling the anterior half of the human urinary bladder when distended, is formed of tinned copper. This covers the whole of the pubes, and extends, becoming gradually narrower, between the thighs, as far back as the perinæum. The

edges are covered with soft leather. Of course it receives the urine, as fast as it trickles from the fungus-like tumor. The inferior part of this piece communicates, by means of a tube, with a flat circular recipient of the same metal, which is placed between the thighs, and is capable of containing nearly a pint. On the lower and fore part of this flatted bottle, is a short tube, fitted with a cork. When a certain quantity of urine has been collected, the cork is withdrawn, and the fluid is discharged in a stream, not much unlike that which issues from the urethra of a healthy man. The whole apparatus is suspended by a bandage passed round the waist, and occasions scarcely any inconvenience to the wearer, either in walking or sitting. During the night, he places a large flatted piece of sponge under the pelvis. The ammoniacal salts of the urine corrode tinned iron so fast, as to render it impossible to employ it in the construction of this instrument. The tinned copper one does not last more than a year, and that which I saw weighed at least a pound and a half. Its weight indeed constituted its greatest incon-

venience. Were the instrument constructed of pure silver, and its different parts connected together by means of silver solder, it would last much longer, and the weight of the whole need not exceed five or six ounces. Perhaps a contrivance of a similar kind may be found useful in incontinence of urine proceeding from other causes. Its general structure will be readily understood by inspecting the annexed figures.

EXPLANATION of *the* PLATES

FIG. I.

- a. The interior surface of the inverted urinary bladder covered with its natural mucus, from whence the urine perpetually drops.
- b. The rudiments of the glans penis divided from above downwards.
- c. The left testicle in its natural situation.
- d. The right testicle situated in the groin.
- e. A tumor caused by a hernia. The part projecting upwards, in the living body,

Fig. 1.



Fig. 2.

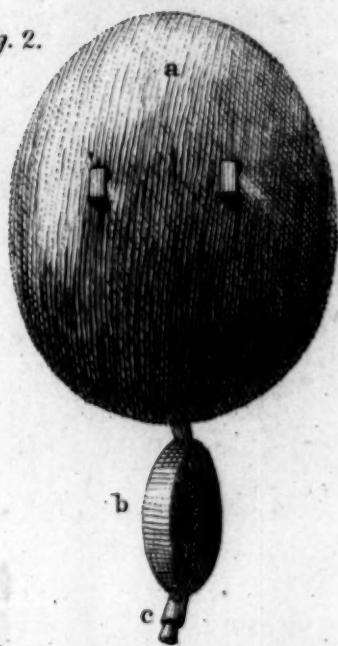


Fig. 3.



gives the appearance of a piece of wood thrust under the skin.

- f. The skin from the pubes to the umbilicus, resembling the cicatrix of a wound.

FIG. II.

- a. An imbossed piece of tinned copper, adapted to the lower part of the abdomen, the edges of which are covered with soft leather.
- b. A flat circular recipient of the same materials, capable of containing about a pint of urine.
- c. The anterior aperture of the recipient fitted with a cork, by withdrawing which the urine is occasionally discharged.

FIG. III.

Is a lateral view of the instrument, supposing it to be divided perpendicularly.

IV. *An Account of an Ophthalmia which prevailed in the Royal Military Asylum, in 1804.* By PATRICK MACGREGOR, Esq. Surgeon to the Royal Military Asylum, and Assistant Surgeon to the Lock Hospital. Read April 2, 1805.

DURING the stay of our troops in Egypt, ophthalmia was so prevalent among them, as very much to diminish their effective strength; and since their return, it has been more frequent and general, not only among the soldiers and sailors, but also among the inhabitants of this country at large, than it had ever been before.

The medical officers, who served with the troops in Egypt, were divided in opinion respecting the nature of the disease, some believing it to be infectious, while by far the greater number thought it otherwise.

My situation, as surgeon to the Royal Military Asylum, has afforded me an opportunity of making some observations on an ophthalmia, which was prevalent among the

children of the institution in the course of last year.

Though it is contrary to the general opinion among practitioners of medicine, that ophthalmia, in this country, is contagious; yet the following circumstances, which are stated correctly, as they occurred under my own observation, would lead us to suppose, that, in one instance at least, it was so.

The contagious nature of ulcers has been sufficiently proved by Dr. Blane, and that of erysipelas by Dr. Wells; and as I think the following facts are connected with, and in some degree corroborate, what they have advanced, on the infectious nature of those diseases, I submit them with deference to the consideration of the Society.

In the beginning of the month of April 1804, two boys, brothers, were brought to the infirmary with their eyes inflamed, but in so slight a degree, as not to require their being admitted. They were made out patients, and by using the common remedies, got well in eight or ten days. In the end of this month, six boys with ophthalmia were brought to me; three of them had it in a

violent degree, and were admitted into the infirmary; the other three were ordered to attend daily for advice.

In the month of May, as appears by the annexed return, no less than forty four boys, and five girls, affected with ophthalmia, were brought to the infirmary. The worst cases were admitted; but there was not room for all, and even some of those, that were admitted, were necessarily mixed with other sick.

On the morning of the fourth day after their admission, two boys who were in the same ward, labouring under other complaints, were attacked with inflammation of the eyes, and in the course of that week the nurse took the disease. She had it so violently, as to be deprived of sight for several days, and rendered unable to do the duty of her situation for about three weeks. About the same time her son, a boy twelve years old, who had been in attendance on the sick, and a few days after, her two younger children, were attacked, as were several of the sick in the same ward.

In June, fifty-eight boys and thirty-two

girls were attacked. It was in general observed, that they had the disease in a more violent degree, than those attacked in May. In the course of this month, the nurse of the Girls' Hospital caught it, and her husband, an in-pensioner of Chelsea Hospital, who came daily to see her, was also seized with it, as likewise were two occasional nurses. Upon inquiry, I found that the above mentioned pensioner was the only person at this time affected with ophthalmia in Chelsea Hospital.

The wife of a field-officer was at this time on a visit at the Military Asylum. She had a son between five and six years of age, who used to play with the other boys. He caught the ophthalmia, and on the fourth or fifth day after it appeared, his sister, a child two years old, was seized, and some days after this, the lady herself took it.

These circumstances gave alarm, and particular attention was paid to the immediate separation of those, who had any symptoms of the disease, from the other sick, and the other means usually adopted for checking the progress of contagion were had recourse to.

In July, the ophthalmia continued to spread, and several of those children who had already had it, and were recovered, took it a second time. Sixty-five boys and thirty girls were attacked this month. They appeared to have had the disease more severely, and did not so readily get well, as those affected in the preceding months, although treated in the same manner. The weather was much hotter than it had been the month before.

In August, sixty-nine boys, and twenty-one girls, caught the disease. A boy and a girl, brought by their mother from Scotland, arrived at the Asylum one evening in the end of this month, and were immediately admitted. The children were put by the nurse, without my knowledge, into a ward occupied by patients affected with ophthalmia; on visiting the Infirmary next forenoon, I directed the children to be immediately removed into another ward. This was accordingly done; yet on the third morning after their arrival both the children had symptoms of ophthalmia, which in no respect differed from what were observed in the others.

All the boys from five to six and a half years of age are formed into one company. It was observed that in the course of the last, and present month, almost the whole of this company took the ophthalmia. Its progress could in their dormitories be traced from one bed to another, in the order in which they were placed, until nearly the whole were affected. The two nurses attached to this company always slept in their wards, and were the only nurses belonging to the Institution, (those connected with the infirmary excepted) that suffered from the disease. About the middle of this month, I caught it myself; and though the inflammatory symptoms subsided in ten days, I did not recover from its effects for five or six weeks.

In September, sixteen boys and four girls took the disease; in October, sixteen boys and seven girls; in November, nine boys and six girls; and from the twenty-second of this month to the end of December, only two instances of it occurred, and these were in two boys, brothers, who had slept together, and had laboured under the disease in the month of August in a violent degree.

From the above statement of the progress of this ophthalmia, there is much reason to suppose that it was contagious. For if the disease had been first produced, and afterwards kept up, by any general cause, (as a peculiar state of the atmosphere) the girls would have been as subject to it in the first instance, as the boys, and the officers, sergeants, and nurses of the institution, generally, would have been as liable to it, as the persons of the same description, that were immediately about the sick. But this was not the case; it had prevailed among the boys for near a month before the girls were attacked, and, as appears by the preceding statement, all the adults, who did not mix with the sick, escaped the disease, while those who were connected with them all suffered from it, the assistant surgeon excepted.

The disease sometimes shewed itself as early as the third day after exposure to infection. This was clearly proved in the cases of the two children from Scotland.

It would appear also, that closer connection with the affected person was necessary to produce it, than what is requisite in most

other contagious diseases. This may be inferred, from the servants of the infirmary, and the two nurses that attended the little boys, taking it so readily, while the other servants of the institution escaped it.

It was influenced by the state of the atmosphere, being much more severe in its attacks, and of longer duration, in hot sultry weather, than during cold or moderate weather. This was clearly seen in July, August, and September, when the disease was unusually severe, and of longer duration, than before or after those months.

There is reason to think, that it was most contagious in its early stage, when the inflammation was active, and there was a considerable purulent discharge.*

* This opinion is confirmed by the following fact, which came under my own observation, and seems to prove that the Egyptian ophthalmia, though probably contagious in its early and active stage, is not so in its chronic state.

In March 1802, fifty-six men of the Coldstream regiment of Guards returned from Egypt, labouring under ophthalmia. Some had irrecoverably lost the sight of one, or both eyes; others had partially lost the sight of one eye, or of both, and several had great

The ophthalmia prevalent in the Military Asylum was attended with symptoms, which generally made their appearance in the following order. A considerable degree of itching was first felt in the evening; this was succeeded by a sticking together of the eyelids, principally complained of by the patient on waking in the morning. The eye-lids appeared fuller externally than they naturally are; and on examining their internal surface, this was found inflamed. The sebaceous glands of the tarsi were considerably enlarged, and of a redder colour than

weakness of the eyes, with a constant discharge of tears. In all of them the eye-lids were more or less affected; and when the inner surface of the eyelids was examined with a magnifying glass, the small sebaceous glands situated there were found increased in size, and of a redder colour than natural.

The men were put into a detached hospital, and were attended regularly for three months by Mr. Knight, and myself. Their friends, in consequence of their long absence, and very distressed situation, were allowed to visit them daily; yet none of these persons, or of the servants connected with the hospital, took the disease. If any of the servants of the hospital had taken the infection, we must have observed it; and if any of their friends had caught it, they would most probably have applied to us for our advice; neither of which happened.

usua. The caruncula lacrymalis had a similar appearance.

In twenty-four or thirty hours after the appearance of the above mentioned symptoms, a viscid mucous discharge took place from the internal surface of each eye-lid, and lodged at the inner canthus, till the quantity was sufficient to be pressed over the cheek by the motions of the eye. The vessels of the tunica conjunctiva, covering the eye-ball, were distended with red blood, and the tunica conjunctiva was generally so thickened, and raised, as to form an elevated border round the transparent cornea. This state was often accompanied by redness of the skin round the eye; which sometimes extended to a considerable distance, and resembled in colour, and form, very much what takes place in the cow-pox pustule, between the ninth and twelfth day after inoculation.

When the purulent discharge was considerable, there was a swelling of the external eye-lids, which often prevented the patient from opening them for several days. The discharge also frequently excoriated the cheeks as it trickled down. Exposure to light

caused pain. When light was excluded, and the eye kept from motion, pain was seldom much complained of.

These symptoms in many subsided without much aid from medicine, in ten, twelve, or fourteen days, leaving the eye for a considerable time in an irritable state. In several, however, the disease continued for a much longer time, and ulceration took place on the internal surface of the eye-lids, and in different parts on the eye-ball. If one of those small ulcers happened to be situated on the transparent cornea, it generally, on healing, left a white speck, which, however, in the young subjects under our care, was commonly soon removed. In some few instances, an abscess took place in the substance of the eye-ball, which bursting externally produced irrecoverable blindness.

The disease of the eye was not observed to be preceded by any general disturbance of the constitution, as fever. But after the local symptoms had been present for two or three days, the constitution became affected, and the degree of this affection, or disturbance, seemed to be in proportion to the

state of the local symptoms. If these were violent, the patient felt restless, and had a white tongue, the fur of which was sometimes thick; his skin was hot, and his pulse quick, generally full and hard, and his appetite lost. But if they were mild, as was often the case, the constitutional symptoms were scarcely to be observed.

In the treatment of this disease, local applications were found most advantageous, and were chiefly employed; but those remedies that act generally on the constitution were never omitted, when they appeared to be indicated.

A spare regimen was in every case strictly enjoined during the inflammatory state of the disease; and when the fever rose high, as it often did, from the violence of the local symptoms, joined perhaps to some particularity of constitution, repeated general bleedings, and purging with neutral salts, were found highly serviceable.

The disease evidently began, and terminated, in the eye-lids, and the surface of the eye-ball seemed only to be affected from its proximity; for they were often in a diseased

state for weeks, nay even for months, after every symptom of the disease, in the membranes covering the eye-ball, had completely disappeared.

The topical treatment was as follows.

Leeches were freely and repeatedly applied near the eye; but if used when the blush resembling cow-pox was present, the wounds invariably festered, which increased much the erysipelatous appearance. Under such circumstances, fomentations of a weak decoction of poppy heads, and a little brandy, were of service in removing the inflammation of the skin. A weak solution of sugar of lead, and white vitriol, applied to the eye, had a good effect in most instances.

The vinous tincture of opium, which has been so highly recommended of late years, was largely tried, but did by no means answer the expectations I had formed of it.

Of all the remedies that were employed, the citrine ointment, prepared according to the London Pharmacopœia, was found the most frequently successful. It was applied to the eye-lids by means of a camel hair pencil. At first, it was mixed with twice

its quantity of lard; but after a few applications the parts bore the ointment without any diminution of its strength.

The red precipitate, well levigated, and mixed with simple ointment, was often applied to the eye-lids with success, after the citrine ointment had failed. In like manner well levigated verdigris was used with advantage, as also a quack medicine called the golden ointment. This last remedy required much caution in its application; for if used when the tunica conjunctiva was in a highly inflamed and irritable state, it gave great pain, and did much harm.

A Table shewing the Weekly Progress of the Ophthalmia, in the Royal Military Asylum, from its first appearance in April, 1804, to December 30th of the same Year.

Time of Admission. 1804.	Number Admitted.	Boys.	Girls.	Number Discharged.	Remaining in the House, 30th Dec. 1804.
April 8	2	2	—	2	
16	—	—	—	—	
23	1	1	—	1	
30	5	5	—	5	
May 8	14	14	—	7	
16	8	8	—	6	
23	20	18	2	13	
31	7	4	3	20	
June 8	18	15	3	14	
16	15	10	5	14	
23	18	8	10	17	
30	39	25	14	15	
July 8	27	15	12	36	
16	15	10	5	14	
18	6	3	3	5	
24	28	23	5	8	
31	18	14	4	14	
August 7	30	27	3	12	
14	23	18	5	10	
21	26	17	9	12	
28	11	7	4	14	
Sept. 5	7	6	1	8	
12	4	2	2	13	
19	7	6	1	11	
26	2	2	—	7	
Oct. 3	7	4	3	9	
10	6	5	1	11	
17	7	7	—	10	
24	3	—	3	8	
Nov. 1	4	—	4	12	
8	7	2	5	17	
15	2	1	1	8	
22	2	2	—	7	
Dec. 30	2	2	—	4	
	392	287	105	386	6

Note. It is not to be understood that the patients were admitted on those days only which are mentioned in the table; but as a return of the sick was made only once a week, it was not thought necessary to specify the particular days on which the patients were received.

V. *Additional Remarks on the Purulent Ophthalmia.* By PATRICK MACGREGOR, Esq.
 &c. Read February 5, 1811.

SEVERAL years have now elapsed, since I took the liberty of laying before this Society some observations on an ophthalmia, that prevailed in the year 1804, to a very great degree, amongst the children of the Royal Military Asylum.

The facts that were then stated, in my mind, sufficiently proved, that the disease was of a very contagious nature, and was imported into this country by our troops, who had served in Egypt.

Since the reading of my former paper, in the beginning of the year 1805, upwards of nine hundred additional cases of ophthalmia, without including the numerous relapses, have come under my particular management.

In some of these cases, notwithstanding the curative means that were used, the sight of one or both eyes has been irrecoverably lost, and in many, a train of symptoms has

followed the first inflammation, which has kept the patient in a state of misery for several months. I therefore submit for the consideration of the Society some additional remarks, regarding the history, and treatment, of this very troublesome disease.

In the winters of 1805, 6, 7, and 8, no new cases of the purulent ophthalmia occurred amongst the children of the Institution; but in the spring, summer, and autumn of those years, a few slight cases presented themselves, which, however, readily yielded to the plan of treatment which we adopted. In the winter, and spring of 1808, the Military Asylum was entirely free from the disease; but in the month of June, while the weather was extremely hot, seven boys and five girls were attacked with it, and before the end of December, sixty-eight boys and one hundred and seventeen girls were infected with it. In January, February, and March, 1809, the children who had suffered from the disorder in the former year had, with a very few exceptions, recovered; and the only increase of cases during this period arose from relapses.

In the month of April, the ophthalmia again made its appearance among the children of the Institution,* eighteen boys and twenty-five girls having taken it. In May, June, and July, it also raged, and from that time till towards the middle of December it prevailed in a very great degree, notwithstanding every preventive measure that was taken, at the suggestion of several experienced physicians and surgeons, who had met in consultation by order of Government.

About two hundred and forty patients were under treatment in November; these were as completely separated from the healthy children as, without a detached hospital, could be accomplished. In the months of January, February, and March, 1810, several cases of relapse occurred; but the recent cases were few in number. In April and May, the disorder again began to spread

* The re-appearance of the ophthalmia at the Military Asylum in April, 1809, appears to have arisen from the constant communication, that existed between the children, and the soldiers of the regiments of the line, many of whom, with their wives and children, at that time visited the Asylum, while they were labouring under the disorder.

rapidly. Towards the end of the latter month, the whole of the children, suffering from ophthalmia, were removed to some distance from the Asylum, into a detached hospital, where their cooking, washing, &c. have been carried on, and from this period the disorder has gradually declined, so that only five cases of it now remain under treatment.

The preventive measures adopted at the Military Asylum are likely to prove successful elsewhere, in similar circumstances. I know that they have been so in the first battalion of the Coldstream regiment of Guards, which returned from Egypt much afflicted with the ophthalmia in the year 1802; and several cases of the disorder have come under my own observation in private families, where, by strict attention to the proper means of prevention, it has not spread from the person first attacked. But in an institution, where at present no less than 1140 soldiers' children are accommodated, discipline cannot be so rigidly enforced as among grown persons: and there are other difficulties to be encountered in the management of

children in health, as well as under disease, that are sufficiently known to all who are entrusted with the charge of them.

The ophthalmia, which has prevailed for some years at the Military Asylum, appears to be of the same nature with that which has raged with such violence in the army, since its first introduction into this country, by the soldiers who returned from Egypt in the years 1800, 1801, and 1802. Its consequences have not been so injurious to children as to adults; for out of the great number of children, that have been afflicted with the disease at the Military Asylum, only six have lost the sight of both eyes, and twelve the sight of one eye.

On the other hand, Dr. Vetch informs us, that "in the second battalion of the 52d regiment, which consisted of somewhat more than seven hundred men, six hundred and thirty-six cases of ophthalmia were admitted into the hospital between August 1805, when the disease commenced, and August 1806;" and that, "of this number fifty were dismissed with the loss of both eyes, and forty with that of one." And it is

a melancholy fact, as appears by the returns of Chelsea and Kilmainham hospitals, that 2317 soldiers were, on the first of December 1810, a burthen upon the public, from blindness in consequence of ophthalmia. Those soldiers, who have lost the sight of one eye, are not included in the number above stated, as they are sent from their respective regiments to garrison duty, and are not registered as ophthalmia pensioners, at either of the Royal Hospitals above-mentioned.

The progress of the contagious ophthalmia, since its first introduction into this country in the year 1800, has in the army been very rapid and extensive, and has at different periods materially interfered with its discipline and efficiency.

It has crippled many of our best regular regiments to such a degree, as for a time, to render them unfit for service; and though the regiments which were in Egypt have, in general, suffered most from the disease, yet it has prevailed extensively in others which never served in that country. Before it made its appearance in this country, it prevailed very much amongst the regiments

which were stationed in Sicily, Malta, and Gibraltar; and it has also accompanied the British troops to almost every foreign station, to which they have been sent.

This disorder appears to be communicated by the purulent matter of a diseased eye being applied to that of a sound person. It so much resembles the venereal gonorrhœa in its manner of being communicated, and its symptoms; and the mode of treating it that has been adopted by the most experienced surgeons is so much the same; that some well informed medical men have entertained the idea of their being the same disorder. But till the identity can be proved by a series of well conducted experiments, such an opinion ought to be received with caution.

The time the morbid matter takes to produce its first effects, after it has been applied to a sound eye, is less than could have been imagined, as is proved by the three following cases.

On the 25th of October, 1809, about four o'clock, P. M. Nurse Flannelly, while syringing the eyes of a boy, which had much purulent discharge, found that a considerable

quantity of the matter had spurted into her right eye. She felt little or no smarting at the time ; but towards nine o'clock the same evening, her right eye became red, and somewhat painful, and when she awoke the next morning, the eyelids were swelled, there was purulent discharge, and she complained of pain in the eye ball. The usual remedies, on my seeing her in the morning, were directed for her relief, and she got well in the space of three weeks or a month. The left eye remained free from disease.

Nurse Fairbrother, about nine o'clock A. M., on the — of January, 1810, when occupied in syringing the eyes of a patient in the Hospital, who had much swelling of both eyelids, with a profuse purulent discharge, found that some of the matter mixed with the injection had spurted into her left eye. I happened to be in the Hospital when this circumstance occurred ; the nurse mentioned it to me, and I directed her to bathe her eye immediately with some lukewarm water. She did so for several minutes ; but, notwithstanding this precaution, about seven o'clock in the evening the left eye began

to itch to such a degree, that she could not refrain from rubbing it. When she awoke next morning, the eye was considerably inflamed, the lids were swelled, and when she moved the eye ball, she had a sensation as if some sand was lodged between the ball and eye-lids. In the course of this day purulent fluid issued from the eye, and other symptoms followed, which were similar to those in the children under her care. The disorder, however, subsided under the usual treatment in fourteen days, and the right eye remained sound during the progress of the disease in the left.

About 8 o'clock, A. M. I believe on the 14th or 15th of February, 1810, Nurse Gainer, while washing with warm water the eyes of a boy suffering severely from purulent ophthalmia, inadvertently applied the sponge she had used to her right eye. She mentioned immediately this circumstance to the other nurses, but took no means to prevent infection. Between the hours of three and four P. M. of the same day, great itching of the right eye took place, and before she went to bed, it was considerably inflamed. Next

morning her eye lids were swollen; she complained of pain on moving them, and the whole anterior surface of the eye-ball was much inflamed. A purulent discharge also began to trickle down the cheeks from the inner canthus. The symptoms increased in severity, and, notwithstanding the means that were used for her relief, the eye-ball burst in front of the pupil, on the fourth day after the application of the morbid matter. The sight of this eye was irrecoverably lost, and the inflammation continued for upwards of three months; but the left did not become affected.

The contagion was, as formerly, more active in warm than in cold weather. Flies, in warm weather, are seen in great numbers surrounding patients labouring under ophthalmia; and, I much suspect, are very frequently the medium by which the disease is communicated.

I have observed, that the disease is invariably more severe and protracted, in persons having red hair, and in such as are of a scrofulous habit, than in others. In proof of this I may mention, that two-thirds of

those who lost the sight of one eye, or both eyes, either had red hair, or had the glands of the neck enlarged, or had some other marks of scrofula existing in their habit.

It is found that the right eye is more frequently affected than the left. It is also in general more severely affected, and the sight of it is more frequently lost. The first circumstance may be accounted for, as the right hand, which is most used, is more apt to be applied to the right eye on various occasions, as in washing, and wiping the face, than the left; but that the right eye should suffer more severely from the disease is not easily explained.

The symptoms of ophthalmia in females are greatly aggravated, for some days previous to the appearance of the catamenia; and on this evacuation taking place, they are as constantly very speedily lessened.

The measles, cow-pox, and mumps, go through their progress as regularly in persons affected with this species of ophthalmia, as when no other disease is present. This circumstance, joined to the facts stated in the foregoing pages, seems to prove it to be

a disease as purely local, as any with which we are acquainted.

As far as regards the treatment of this ophthalmia, when it affects the general health, I have nothing to add to what was stated in my former paper. But I have a few observations to make on several local remedies, some of which have become known to me within the last five years.

In the ophthalmia which I have treated of, a high degree of active local inflammation, and a most profuse purulent discharge, are the leading symptoms; and it is from their tendency to destroy the delicate structure of the eye, that danger is most to be apprehended.

After general bleedings have been fully employed, more real advantage has been derived from the application of leeches, than from any other mode of taking away blood topically, with which I am acquainted. There is therefore much reason to recommend their being applied freely, and repeatedly. By means of leeches, a certain quantity of blood is taken away from the vicinity of the inflamed eye, which is thereby invariably relieved, and the operation produces neither

general, nor local disturbance; whereas, when the eye-ball is scarified, for the purpose of taking away blood, it is found that this operation, however skilfully performed, does more harm by the irritation which it produces, than is compensated by the evacuation.

Blisters applied behind the ears, to the neck, and between the shoulders, are highly serviceable; but if placed nearer the eye they irritate it, and increase the inflammation.

Warm and cold applications have their respective advocates, for the cure of inflammation of the eyes, as well as for the cure of inflammation of other parts of the body. But though the former have been frequently observed, in slight cases of common ophthalmia, and in the first stage of the purulent, to afford more relief than the latter, particularly in irritable habits, where the external eye-lids are in an erysipelatous state; yet they relax the eye-lids, increase the discharge, and encourage the disposition of the cornea to rupture, an occurrence which, in this disease, proves fatal to vision, and which it ought therefore to be the invariable object of the surgeon to prevent.

When general and local bleedings, and the other means already recommended for the cure of purulent ophthalmia, have not arrested its progress, and the patient complains of fulness, and tension of the eye-ball, with lancinating pains in the temple, and under the eye-brow of the side affected, the surgeon ought carefully to separate the eyelids, and examine the parts.

If, on doing so, he finds that ulceration has taken place, on the external surface of the transparent cornea, and that the prominent and distended state of it indicates the danger of a speedy rupture, a puncture ought without delay to be made into the external edge of the cornea, for the purpose of removing the tension by discharging the aqueous humour.

The symptoms rendering a puncture of the cornea adviseable are produced by inflammation of the coats of the eye. When this is violent, and general, increased secretion of the aqueous humour accompanies it. Purulent matter sometimes forms in the chambers of the ball, and the coats of the anterior part of the eye become preternaturally distended.

When these circumstances occur, the tension, as far as I have observed, is invariably relieved by puncturing the cornea.

The operation is simple, and may be performed either with the cornea knife, as recommended by Mr. Wardrope, to whom surgery is indebted for bringing the operation into public notice, or with a grooved couching needle, as advised by Mr. Ware.

The aqueous humour may be completely evacuated by either instrument; but care should be taken not to wound the iris, which, on the escape of the fluid, is very apt to be thrown forward on the point of the instrument, if it be not withdrawn as soon as the parts begin to collapse.

If the iris happens to be wounded in performing the operation, inflammation takes place, which is likely to be followed by adhesions of the iris to the parts in its neighbourhood. But such an unfortunate occurrence can only happen from want of attention on the part of the operator to the circumstances alluded to. It is to be regretted, that this operation is not more frequently performed; for I am convinced, that many

persons have lost their sight from a rupture of the cornea taking place in front of the pupil, which a timely, and judicious performance of this operation might have prevented. Indeed nothing more strongly proves the propriety of the operation here described, than the relief from pain which is experienced by the patient, very soon afterwards, and this is in most cases followed by a speedy diminution of the purulent discharge. A similar diminution of pain, and of discharge is observed to follow the rupture of the eye-ball, that, unfortunately, so frequently takes place in purulent ophthalmia; but protrusion of the iris is apt to accompany this accident, which, joined to the opake cicatrix, that forms on the part of the cornea which is opposed to the pupil, proves frequently destructive of vision.

I have within the last two years performed this operation in twenty-three instances, with a degree of success that strongly induces me to recommend it. For of this number twenty-one were immediately relieved by it, and afterwards recovered their sight under the usual mode of treatment.

In the remaining two cases, from the violence and extent to which the disease had previously proceeded, added, perhaps, to some particularity of constitution, the puncture of the cornea was not attended with similar success. It gave relief by removing tension; but on the evening of the day on which it was made, an extensive rupture of the cornea took place in front of the pupil; the whole eye-ball fell into a state of suppuration, and the sight in both cases was lost.

When the violence of the inflammation had subsided under the above mentioned mode of treatment, astringent, and gently stimulating applications were used, for the purpose of lessening the secretion of purulent matter, and of restoring the tone of the relaxed vessels of the eye and eyelids.

The camphorated water of Bates, diluted with four, five, or six times its quantity of distilled water, has been favourably spoken of by Mr. Ware, and I have found it a very valuable remedy in the latter stages of the purulent ophthalmia. But the astringent application, from which I have seen most

advantage derived, is a solution of the nitrate of silver.

This remedy, so far as I know, has not been mentioned by any of the medical practitioners, who have written on the purulent ophthalmia; nor do I find on inquiry, that it has been in use amongst those surgeons, who have been most employed in treating the disease. I have, however, within the last three years, used it frequently for removing opacities on the cornea, and other relics of ophthalmia. It has been more efficient also in correcting, and lessening the secretion of purulent matter, and restoring the tone of the relaxed vessels of the conjunctiva and eye-lids, than any other remedy with which I am acquainted. When used for removing specks on the cornea, it is to be applied in the form of drops, and the solution should be prepared in the following manner. Dissolve one grain of the nitrate of silver in an ounce of distilled water, put the solution into a bottle which has a glass stopper, and keep it in a dark place. A few drops of this solution may be applied to the eye, night and morning, for some time, and if it does

not give much pain, the proportion of nitrate of silver may be increased gradually to two grains to an ounce of water. I have never used it beyond this strength.

When the solution of the nitrate of silver is used for the purpose of correcting the purulent discharge, or of removing a relaxed state of the vessels of the conjunctiva, it is to be applied as an eye-water, and the strength which I have found to answer best is given by dissolving half a grain of the nitrate in an ounce of water. It may, however, be used with advantage, in particular cases, somewhat stronger, especially where a purulent discharge has followed a violent state of inflammation, and has continued for several months, notwithstanding the employment of a variety of astringent, and stimulating remedies.

Tepid sea water has also frequently been found useful in removing the relics of this ophthalmia, and when opportunities are not afforded of obtaining sea water, a solution of an ounce of sea salt in a quart of water may be used in its stead.

I have been informed by several of the

British officers who served in Egypt, that the natives of that country, who suffer so much from ophthalmia, are in the habit of washing their eyes frequently, when labouring under the disease, with their own urine in a tepid state, and we must suppose that their doing so arises from the benefit which they derive from the practice.

VI. *An Instance of the Obliteration of the Vena Cava Inferior from Inflammation.*

By JAMES WILSON, Esq. F.R.S. and Lecturer on Anatomy. Read June 4, 1805.

IN a paper in the first volume of the Transactions of this Society, containing Remarks on uncommon Appearances of Disease in Blood-vessels, Dr. Baillie has related an instance of the obliteration of the vena cava inferior, from the emulgent veins to the entrances of the venæ cavæ hepaticæ. From various circumstances it seemed probable, that this obliteration had taken place long before the person's death; but as the body had been brought to Windmill-street in the usual way, no history of the case could be obtained.

As I have met lately with a more extensive obliteration of the same vessel from inflammation, and have been able to procure some, although an imperfect, account of the symptoms which preceded death; a relation of these, and of the appearances upon

dissection, may perhaps form no improper sequel to the case described by Dr. Baillie.

The body appropriated to the demonstration of the viscera, in the last Spring course of my Anatomical Lectures, was that of a young woman, apparently not more than twenty years of age, well formed and thin. From various circumstances it seemed probable, that she had recently been delivered of a child.

On examining the appearances and relative situation of the thoracic viscera, the only uncommon circumstance which I remarked was the enlarged size of the trunk of the vena azygos.

When the cavity of the abdomen was exposed, I perceived that the vessels, in several parts of the peritonæum, were much distended with blood. In some places this membrane shewed evident marks of inflammation, and in others slight adhesions had taken place. Where it covered the uterus, and also where it formed the broad ligaments of that organ, it was much thickened and crowded with vessels, the majority of which were evidently distended veins. The liver

was rather larger than it usually is, and a small abscess was found in the lobulus Spigelii, which contained about an ounce of pus.

From the liver downwards, much fullness and hardness was felt in the course of the vena cava inferior; and on my attempting to trace this vessel to the emulgent veins, I found that its coats had acquired at least three times their natural thickness, and adhered very strongly to all the surrounding parts. The cavity of the vein was distended with a fluid; which, upon a small perforation being made into the vein, issued out to the quantity of four ounces, and appeared to be well-formed pus.

I now cautiously slit open the vein, and perceived that this pus had been prevented from passing to the heart, partly by a contraction or puckering of the vessel immediately below the entrances of the three large venæ cavæ hepaticæ, and partly by a quantity of coagulable lymph, which, having become solid, adhered with great firmness to the inner surface of the contracted part, and plugged up the cavity of the vessel to the extent of about a quarter of an inch. The

inner surface of the vein which formed the abscess had become rough, and, in particular parts, portions of coagulable lymph adhered to it. Small cavities were also formed in its coats, which somewhat resembled those found among the thickened fasciculi of the muscular fibres of the bladder. A quantity of coagulable lymph, strongly adhering to the inside of the vein, had completely filled up its cavity from the emulgent veins downwards. The adhesion of this substance to the internal surface for the extent of two inches was so strong, as scarcely to admit of separation. Below this, the lymph formed a plug, which adhered with considerable firmness, yet not so firmly but that it might with some difficulty be partially separated; the inner surface of the vein then appeared rough, and crowded with vessels.

The coagulable lymph, in the vicinity of the abscess, had a very different appearance from that in the lower part of the vein; it was whiter, rougher, and laminated; in short, it was exactly similar to that which is found on other inflamed surfaces. That in the lower part had some red globules entangled

in it, was more solid throughout, and did not appear to be laminated. It seemed to have been formed by the blood contained in the cavity of the vessel having coagulated, perhaps from rest; but from the inner surface of the vein being in a state of inflammation, an adhesion had taken place between them.

The coats of the emulgent veins, and of their branches, were thickened until they nearly reached the kidneys, and their cavities were filled with the same substance. Both the spermatic veins were remarkably thickened, and their cavities completely obliterated by the same process; as were the primary iliac veins, the external iliac veins until they had nearly reached the groin, and the internal iliac veins, with most of their larger branches, particularly those which returned the blood from the uterus. The whole of these vessels adhered so firmly to their correspondent arteries, as to render the separation of the one from the other impossible without considerable injury to their coats.

The uterus was much larger than it usually is in its unimpregnated state; the coats of its principal veins were thickened, and their

cavities partially obliterated. The smaller branches, both in its substance and on its internal surface, were very numerous, and much distended with blood:

The vessels of the lower extremities I found, upon a careful examination, to be in a perfectly natural state; no undue accumulation of blood had taken place in the veins, nor had any watery fluid collected in the cellular membrane.

As the stoppage of the circulation of the blood in the large veins below the diaphragm (excepting in those of the liver) was so complete, a wish naturally arose to ascertain with accuracy the principal channels, by which the blood, usually returned by them, had reached the heart.

In attempting this, I found that the anastomosing branches of the veins on the sides and back part of the pelvis were much enlarged, as were also those between the vena saphæna major, and the branches accompanying the deep-seated arteries passing through the foramen magnum ischii and the sciatic notch. Large communications were seen filled with fluid blood between the venæ

pudicæ externæ, and the lower branches of the vena mesenterica inferior, which was enlarged to treble its usual size.

The veins coming from the sinuses of the dura mater in the theca vertebralis, the sinuses themselves, and the veins entering them, were much enlarged, and the communications between them and the sacral and lumbar veins were, by the blood contained in them, rendered very apparent. The enlarged branches of the lumbar veins formed such easy communications with each other, as to allow a passage through them to a very large quantity of blood, which entered the vena azygos by the anastomosing branches of its lower part. This vein, although three times larger than it commonly is, was without the varicose appearance described by Dr. Baillie. The emulgent and phrenic veins communicated largely with the lumbar veins, and the vena azygos.

By means, therefore, of the increased size of the veins which have been mentioned, and the enlargement of their anastomosing branches, the blood, which had formerly been returned by the trunk of the vena cava

inferior, in consequence of the complete obliteration of this vessel from the liver downwards, reached the heart by a more circuitous course indeed, but with so little difficulty, that no real impediment was occasioned to the general circulation. The blood passed from the *venæ pudicæ externæ* into the inferior mesenteric veins, and from thence to the *venæ portæ*; it circulated afterwards through the liver, and entered the lower part of the right auricle of the heart, by the very small portion of the *vena cava inferior*, which remained pervious, viz between the auricle and *venæ cavæ hepaticæ*. The remaining part, having reached the *vena azygos*, passed from it into the *vena cava superior*, and entered the same auricle from above.

The dissection necessary for the demonstration of the viscera prevented me from injecting and preserving the anastomosing vessels; but the *vena cava inferior*, the iliac veins, and some of the other branches were preserved, and distinctly shew the above mentioned appearances.

Wishing much to know what symptoms this great alteration of structure had pro-

duced, and from what causes it had arisen, I applied for information on these points to a practitioner of medicine, who, I was told, had attended the person of whom I have been speaking, during her last illness. He mentioned to me, however, that he had not seen her, until she was so low and feeble, as to be unable to give any account of the origin and progress of her disease; that she was then extremely emaciated and laboured under a considerable purging, but complained of no pain; that her pulse was very frequent and small, but regular; and that her purging having increased, and her stomach rejecting all kinds of food and medicine, she died five days after she had been placed under his care. He added, that he had been informed by one of her friends, that the purging had attacked her three weeks after delivery, and had never afterwards ceased; but that he could not learn the exact time, which had elapsed from her delivery to his first seeing her. From circumstances, however, already described, it is probable, that this was not more than four or five weeks.

The following remarks have occurred to me on this case.

Mr. Hunter has observed, that inflammation of the internal surface of veins is so common, that he had scarcely ever seen an instance of suppuration in any part furnished with large veins, where appearances of inflammation of their cavities were not evident after death. I have had many opportunities of seeing this observation confirmed in most parts of the body, and have also frequently met with such a state of the veins of the uterus, in cases of inflammation of that organ after delivery. Some years since, a great number of women were attacked with puerperal fever in the Store-street hospital, and many died a few days after delivery: I inspected the bodies of most of these with Dr. Clarke, who has published an account of the disease. In all these bodies, the peritoneal coat and substance of the uterus appeared to have been inflamed, and pus was often found, sometimes in large quantity, in the veins.

From these circumstances I am induced to suppose, that the disease in the subject of this case began in the uterus, and that the

inflammation spread along the veins, until it reached the vena cava inferior.

Most of the changes produced by the inflammation of veins on the coagulable lymph have been so amply and clearly detailed by Mr. Hunter, in a former volume of these Transactions, as to admit of no farther illustration. We can see the wisdom of these changes in the effects produced by them; but their immediate causes we are altogether unacquainted with.

One change, however, which the coagulable lymph undergoes in inflammation is, I believe, not noticed by Mr. Hunter, although it has been observed by the late Mr. Hewson, *viz.* its greater thinness than in health. This Mr. Hewson asserts (and I have frequently observed it to be so) is apparent to the naked eye, when blood, taken from persons labouring under violent inflammation, is compared with blood taken from a person, in whom no inflammation exists. He states, that the whole mass of inflamed blood before it coagulates is actually thinner, than the serum of the same blood is after coagulation has taken place, and the crassa-

mentum has separated from it. And from the experiments, which have been made and published by him, I think it may be fairly concluded, that as the whole mass of inflamed blood appears to be thinner than the serum when separated, this additional thinness can depend only upon an altered state of the coagulable lymph, the lymph becoming so attenuated as to dilute the serum. This leads me to suggest, (and I offer it only as a suggestion) that the disposition which the arteries of inflamed parts have acquired of separating the coagulable lymph from the rest of the blood, and of secreting or throwing it out on surfaces, may possibly be influenced by the previous change which the lymph has undergone, *viz.* by its having become thinner than the other fluid parts of the blood. In other words; although we are not acquainted with the nature of the union between the coagulable lymph and serum, while both are fluid and circulating in the blood-vessels, or with what produces its attenuation in inflammation, yet as this attenuation does take place, we may hence account for the exhalant arteries more readily sepa-

rating the lymph from the blood, and depositing it on surfaces or in cells.

I have met with no case, which tends more fully to shew the great resources of nature, in preserving life under circumstances, which, upon a superficial view, might be deemed incompatible with it. For I do not consider this extensive obliteration of the principal venous trunks as the cause of the woman's death; since the blood by another course passed so readily to the heart, as to have left no traces of its ever having accumulated in the vessels of the lower extremities, or of its ever having met with any considerable obstruction. Nor could the time which the enlargement of the new channels required have been great, as it does not appear that the return of blood through them, even at the commencement of the disease, was attended with any difficulty. I have in several instances had opportunities of observing, how quickly one or more anastomosing branches enlarge, when the motion of the blood in the vessel from which they sprang is stopped. This is very well seen after the division of those small arteries,

which, in an inflammation of the tunica conjunctiva, are observed going to the cornea. One of the nearest anastomosing branches will soon be perceived to enlarge, and take a straight direction, so that in a very few hours no appearance of the division will remain.

Several years since, at the desire of the late Mr. Cruikshank, who then had a violent inflammation of the eye, I frequently divided the arteries running to the cornea, and, in consequence of his great irritability and anxiety of mind, reported to him the alteration in the appearances at least once every half hour. I then could most distinctly trace the enlargement and altered course of the anastomosing branch, until it appeared as a perfect continuation of its parent vessel.

I have stated, that the upper part of the vena cava inferior was much contracted in its circumference, appearing puckered, as if a ligature had been made round it. This alteration of shape could not have been produced by any pressure of the surrounding parts; for, with the exception of the small abscess in the lobulus Spigelii, no viscus near it

was altered by disease.* It must have been effected by some action in the vessel itself, similar to that which takes place in the shutting up of the ductus arteriosus and canalis venosus after birth. Had not the diameter of the vein been lessened by some action of this nature, it is hardly possible, that in so large a vessel, the lymph, by coagulating and adhering to its inner coat, could have stopped the progress of the blood, or prevented the pus, when formed, from reaching the heart. This confirms an observation of Dr. Baillie's in the paper before alluded to, *viz.* that a process of obliteration sometimes takes place, (although he believes it to be extremely rare) which is independent of the usual causes, and arises from some disposition of the vessels which cannot be explained.

In inflamed superficial veins which anas-

* This little abscess had no communication with that in the vein. In all probability it was occasioned by the inflammation extending from the vena cava inferior, along one of the smaller branches of the venæ cavæ hepaticæ, which came from this part; for the rest of the liver, although somewhat enlarged, which it might have been from the additional quantity of blood circulated through it, was not diseased.

tomose largely, I do not know that this partial contraction of the vessel has ever been remarked, the quantity of coagulable lymph thrown out, and its strong adhesion to the inner surface of the vein, producing a sufficient obstruction to the passage of the blood; although, *a priori*, this contraction in such vessels might be expected to occur the most frequently, as the coats of small and external veins are thicker in proportion to their diameter, than the coats of those which are larger and more internal.

* Since the preceding paper was read, I have met with two cases, in which nearly the same appearances were observed, (with the exception of the abscess in the upper part of the vena cava inferior) and in women who died a few days after delivery. In both of these, some of the larger veins of the uterus contained pus, and in both the obliteration of part of the vena cava inferior by coagulable lymph, strongly adhering to its inner surface, and filling up its cavity, had taken place. The obliteration in one of these extended only to the entrances of the emulgent veins; in the other, to the entrances of the venæ cavæ hepaticæ.

VII. *A Case of Aneurysm of the Aorta, attended with Ulceration of the Œsophagus and Windpipe.* By WILLIAM CHARLES WELLS, M. D. F. R. S. and Physician to St. Thomas's Hospital. Read January 6th, 1807.

GEORGE BULLER, a sailor, aged thirty-four years, was admitted into St. Thomas's Hospital the 29th of March, 1804. He complained of a great pain in his back and breast, breathed with considerable difficulty, coughed much, expectorated copiously, and was somewhat blue in the face. His pulse was frequent, soft, and rather feeble; his appetite for food small; his belly open. The matter expectorated sometimes contained a little blood. He said, that about nine months before he had been shipwrecked in the West Indies; that he had been attacked shortly after with the pains of his back and breast; and that the cough, difficulty of breathing, and spitting, had come on five months afterwards, upon his return to this country.

Notwithstanding his disease, his body was not much extenuated; nor was his muscular strength greatly diminished.

On the 31st of March, I was informed by one of the pupils of the Hospital, that Buller had been the patient of my colleague, Dr. Lister, some months before, and that he had then an aneurysm of the aorta. I immediately examined his chest, with great care, but could discover not the slightest indication of an aneurysm. I then inquired of Dr. Lister, if the information which I had received from the pupil was correct. His reply was, that in the spring of the preceding year he had admitted into the hospital a person named George Buller, on account of some obscure disease in his chest; that, about a month after, a small pulsating tumour appeared on the right side of the upper part of his sternum; and that this tumour continued to be perceived, as long as he afterwards remained in the hospital, which was about six weeks. I easily ascertained, that my patient was the same Buller who had been in the hospital twelve months before; but my reliance upon his accuracy was much diminished, when I

compared this fact with his statement, that it was only nine months since he had fallen ill in the West Indies.

After he had been a few days under my care, he began to complain much of a pain in his windpipe, which was greatly increased when he swallowed any thing. This pain, he said, he had for some time experienced, but in a less degree. On the evening of the 3d of April, his breathing grew more difficult, and continued almost constantly so till the morning of the 7th. He then became very tranquil, and soon after died.

The day following his body was opened by Mr. Saunders, Demonstrator of Practical Anatomy at St. Thomas's Hospital. Immediately behind the sternum was found a very large aneurysm of the aorta, extending from the origin of that vessel to the other extremity of its arch. The tumour contained, besides much fluid blood, about a pound and a half of a hard fibrous coagulum, the greater part of which was on the side next the sternum, being there about an inch and a half thick. The cavity of the windpipe was nearly obliterated, from the pressure of the

aneurysm; and the extremities of four of its cartilages lay in the œsophagus, having entered that canal through an ulcer in its coats. The lining of the windpipe being, however, nearly whole, the communication between the two canals was only large enough to receive a goose-quill of an ordinary size. The sternum, where pressed by the aneurysm, was very thin, and had two or three small holes, capable of admitting a pin's head. No blood had escaped from the tumour, and there were no marks of disease in his chest, besides those which have been related.

VIII. *A Case of Aneurysm of the Aorta communicating with the Pulmonary Artery.*

By WILLIAM CHARLES WELLS, M. D. &c.

Read February 2, 1808.

MR. A. B. a merchant, of a fair complexion, thin make, and temperate habits of life, in 1789, being then thirty-five years old, became affected with symptoms, which were thought to denote the approach of pulmonary consumption. These, however, after some time entirely disappeared. In 1798 he was attacked with a slight hemiplegia, from which his recovery was soon so nearly complete, that the only inconvenience left by it was an inconsiderable sense of coldness in the foot of the side, which had been affected with palsey. In March 1804, he complained to me of being frequently troubled with a noise in his ears, flatulence in his bowels, and pains in his hands and feet sometimes attended with slight swellings in the same parts. From one or more of these symptoms he was never, I believe, long

entirely free during the remainder of his life. He never spoke to me, however, concerning any unusual feelings in his chest, and I have not learned, upon inquiry, that he ever mentioned his having such feelings to any of his friends or relations, after his recovery in 1789, though his attention was always much directed to the state of his health, and he was not indisposed to make it a subject of conversation.

On the 11th of August 1807, he fatigued himself considerably with walking. Upon his return from London on that day, to his house in the country, he ate rather a full dinner: and having fallen asleep afterwards, he felt so much refreshed in the evening, as to play with his children in his garden. While thus amusing himself, he was suddenly seized, between eight and nine o'clock, with a sense of great oppression in his chest. He soon after became sick at the stomach and vomited; in the matter thrown up some streaks of blood were observed. He now went to bed; but though the weather was warm, and he was covered with bed-clothes, his skin felt cold to those

who were attending upon him. Mr. Bliss, a practitioner of medicine at Hampstead, saw him soon after midnight. He then laboured under a constant desire to cough, and was continually expectorating mucus tinged with blood. His body was moistened with a cold sweat, and his pulse was extremely feeble; sometimes it was scarcely perceptible. Mr. Bliss having declared him to be in great danger, a messenger was sent to desire me to see him; but as I happened to be from home, the messenger applied to Dr. Baillie, who in consequence visited him about five o'clock in the morning. His pulse was then very feeble and irregular; his breathing difficult; his skin pale, cold, and covered with a clammy sweat. Frequently he tossed and writhed his body, as if he was suffering great pain or uneasiness. The faculties of his mind, however, seemed unimpaired. Dr. Baillie concluded from what he observed himself, and from what he was told by Mr. Bliss and the patient's attendants, either that a large quantity of serous fluid had been suddenly effused into the cellular texture surrounding the air-cells of the lungs;

or that some considerable blood-vessel had been ruptured in the chest. Mr. B. about a quarter of an hour after Dr. Baillie had seen him, became suddenly worse, and in a few minutes expired. Almost immediately before his death, he complained much of heat in his chest, and threw off the bed-clothes to cool himself.

Two days after death the body was opened by Mr. Bliss, and his partner Mr. Haynes, when the following appearances were observed.

The blood-vessels of the lungs were very much distended, and there was also a considerable quantity of blood in the air-cells.

The right lung adhered slightly to the ribs and pericardium; but this seemed to have been the consequence of some disease, which had existed long before death.

Each cavity of the chest contained about ten ounces of a fluid highly tinged with blood; the pericardium contained about two ounces of a fluid similarly tinged.

The ascending aorta was distended to about the size of a large orange. The tumour adhered to the pulmonary artery just before

its division into the right and left branches. Within the circumference of this adhesion there was a narrow hole, by means of which a communication was formed between the two arteries.

The cavities of the heart and the great blood vessels were very much distended with blood.

The diseased portions of the aorta and pulmonary artery were afterwards seen by Dr. Baillie and myself.

The occurrence of such a disease as that which I have described might readily have been imagined ; but I have found no instance of it in the books which I have read, and no previous example of it, I believe, had been seen by any of the surgeons or anatomists of London.

It will be admitted, I suppose, that the communication between the aorta and pulmonary artery took place on the evening before the patient's death, when he first felt an oppression in his chest. In consequence of the superior strength of the left side of the heart, a part of the blood which was thrown by it into the aorta must have been

forced into the pulmonary artery, from which circumstance an explanation may readily be derived of all the symptoms the patient laboured under, except the sickness and vomiting. These would probably have occurred, if any other great disease had attacked him, shortly after a full meal, without proving immediately fatal.

IX. A Case of Epilepsy and Hemiplegia,
apparently induced by a sharp Projection
from the inner Table of the Skull. By
WILLIAM CHARLES WELLS, M. D. &c.
Read January 6, 1807.

ON the 15th of November, 1804, Trusty Halstead, a negro sailor, seemingly about eighteen years old, was received into St. Thomas's Hospital, on account of a palsey of his left limbs, and of his being subject to convulsions, both of which diseases, he said, had first attacked him about four years before, shortly after being struck on the right side of his head with the claw of a hammer. On examining his head, I found in the right parietal bone a short narrow chink, into which I could insinuate for a little way the edge of a shilling. This fact being ascertained, it appeared to me probable, that relief might be afforded to the patient by trepanning the skull, where the blow had been given. The surgeons of the hospital agreed with me in this opinion, and the patient was

accordingly trepanned in the beginning of December. On the outside of the circular piece of bone which was removed, there was a shallow excavation, somewhat of the figure of a broad oval, and about half an inch long. In the greater diameter of the oval there was a narrow aperture, about a quarter of an inch in length, which extended through both tables of the skull. Externally, it was an eighth of an inch wide, but only half as much internally; for there had formed upon the inner table, on one side of the aperture, a thin plate of new bone, which projected half way over it. From the edge of this plate, at one of the extremities of the aperture, there arose, at right angles to the inner surface of the skull, a small conical bone, about the eighth of an inch in length, and ending in a very sharp point. Its extremity was a little bent, from which circumstance, and from those previously mentioned, it resembled very much, in shape, the spur of a common fowl. The whole of the diseased or altered bone was apparently removed by the operation.

Halstead had not hitherto been affected with convulsions in the hospital. He had

said, indeed, upon being received into it, that they did not attack him, except, to use his own words, he was put into a passion. During the operation, however, they came on with great violence, and harassed him frequently for nearly a fortnight. Before the wound in his head was healed, his master, being about to sail for the West Indies, took him from the hospital. His palsey was then somewhat less than it had been before the operation. He returned to London about ten months after. During his absence, he had grown both taller and stouter; the limbs too of his left side had become stronger, but they were still much weaker than those of the right, and he was still liable to convulsions when his anger was excited.

From this case it seems to follow, that epilepsy and palsey, originally induced by a mechanical stimulus applied to the brain, may continue long after that stimulus has been removed.

X. *Two Cases of Suppuration of the Brain in consequence of External Injury, with Observations.* By EVERARD HOME, Esq. F.R.S. *Serjeant Surgeon to the King, and Surgeon to St. George's Hospital.* Read October 4th, 1808.

A GENTLEMAN about twenty-five years of age, in the end of the year 1807, received a wound in his head from a pistol bullet in a duel. This happened on the coast of China. The surgeon of the ship, in which he was an officer, found, that, the bullet had occasioned a fracture of the superior and posterior part of the right parietal bone, but had not entered the cranium. The nature and progress of the symptoms, which occurred in the first instance, have not been ascertained, further than that he was for some time insensible, and afterwards delirious, and that he was confined to his bed for six weeks. It is stated also, that, during this time, two very small portions of bone were taken from the wound. He afterwards became well enough to attend to his duty in

the ship, and he returned to England in June 1808.

During the latter part of the voyage to Europe, he was subject to attacks of numbness of the whole of the left side of his body. On his arrival in England, this symptom became worse, and occurred more frequently. It attacked him often while walking in the streets, and was attended with convulsive motions of the left arm. He was subject also to severe head-aches.

In July, 1808, I was consulted. I found a small sore of the scalp remaining in the part, where the injury had been inflicted, with an orifice through which the probe might be passed for an inch and a half: in doing so a piece of bone was felt apparently loose. I stated to the patient, that, in all probability this piece of bone produced the symptoms of which he complained, and recommended that it should be removed. On the 13th of July, I divided the scalp with a knife, and found a space three-fourths of an inch in diameter, in which the bone was deficient, and which was filled up by a fungus growing from the parts below. On

the edge of this space a portion of the parietal bone was depressed, but firmly united to the neighbouring bone.

As the depression of the bone was sufficiently great to account for all the symptoms, I did not hesitate to recommend, that the bone should be perforated with the trephine, for the purpose of removing the depressed part. I was now led to conclude, that it was a portion of the depressed bone, which I had felt with the probe.

The operation was performed on the afternoon of the 15th of July. In separating the scalp he felt a greater degree of pain, than is usually experienced in this part of the operation. A circular portion of bone, three-fourths of an inch in diameter, was removed, to the inferior surface of which was attached a process of a triangular shape, which had been driven in upon the brain, so as to be one-fourth of an inch below the level of the internal surface of the cranium, in which state it had become united to the adjoining bone. Finding this, and understanding that two pieces of bone had been already removed, I had reason to suppose,

that nothing more was necessary for the relief of the patient. Some light dressings were applied to the wound.

He slept well, and was perfectly composed until four o'clock of the following morning, when he awoke with a violent head-ache, which, however, subsided in a few hours. He took a purgative draught in the course of the day. At night, he had an attack of numbness of the left side, with convulsive motions of the arm of the same side.

July 17. He continued well, except that he had an attack of numbness during the day, and another at night.

July 18. He continued well. Another purgative draught was administered.

July 19. He had an attack of numbness in the morning. In the evening, he complained of head-ache, referring the pain to the right side of the head. He was restless, and at times wandering in his mind. His pulse was quick and hard. Ten ounces of blood were taken from the arm, the coagulum of which was buffy, and cupped on the upper surface. During the night he had a shivering fit.

July 20. He had another shivering fit in the forenoon; and was restless, and occasionally delirious, during the whole day, complaining of pain in the right side of his head. It was observed, that he had not the perfect use of the left side of his body. His pulse was quick and hard. In the morning, he took a purgative draught. At three P. M. ten ounces of blood were taken from his back by cupping. In the evening, Dr. Baillie saw him with me in consultation, and ten ounces of blood were taken from his arm.

July 21. He was free from pain in the head, and was composed and rational during the whole day; at noon he had a slight shivering. The wound had a healthy appearance. He took a purgative mixture every two hours. In the night he was again restless and delirious.

July 22. He was more composed than during the night. His pulse was quick but not hard. In the afternoon he had a shivering fit. In the evening, his skin, being very hot, was sponged with vinegar and water.

July 23. He was delirious during the

whole day; and it was found that he had entirely lost the use of the left side of his body. Sixteen ounces of blood were taken from his arm at four P.M.; and the same quantity was again taken in the evening. The coagulum had a buffy surface. During the night he lay nearly insensible, and at eight o'clock on the following morning he died.

Dissection.

On removing the upper part of the cranium, and examining its under surface, there was found, at the part which the ball had struck, a space three-fourths of an inch in diameter, in which the bone was deficient: this space was occupied by a fungus attached to the edge of a corresponding opening of the dura mater, and parts underneath. The fungus surrounded an orifice leading to an abscess in the substance of the brain, about three-fourths of an inch in depth, in which were three dead portions of bone, surrounded by a thick fluid somewhat resembling pus. On making a section of this part, the dura and pia mater were found adhering to the edge of the abscess; the substance of the

brain below was compact, forming a boundary to it. Inflammation was found to have extended from the root of the fungus, over the whole of the pia mater covering the right hemisphere of the cerebrum, and pus was seen on different parts of its surface.

It appears therefore, that the pistol ball had broken a hole into the skull, equal to its own circumference, but had not proceeded farther. Two portions of bone had been depressed, and had afterwards become united to the edge of the surrounding bone. One of these only had been removed by the operation. A third portion had been wholly detached, and broken into small pieces, which were driven into the brain, and afterwards had become enclosed in the abscess. It was found on further enquiry, that the two pieces of bone said to have been extracted in India were very small, not exceeding the size of grains of barley.

In the history of this case we have to notice the following important facts.

1st. Several portions of bone had been forced through the dura and pia mater into the substance of the brain, and yet the

patient for some months experienced no considerable symptoms, either from this cause, or from the depression of bone, which the accident had also occasioned.

2dly. The suppuration that followed the inflammation, which arose from the injury, did not prove fatal, while there was an external opening for the matter.

3dly. It appears that the symptoms of injured brain began to arise, as soon as the orifice in the scalp was so much closed, as to prevent the free exit of the matter.

4thly. The removal of a portion of the cranium, by exposing the lacerated dura and pia mater, and destroying the adhesions which had been formed between them, admitted of the inflammation, consequent to the operation of trepanning, being extended over the whole hemisphere of the brain, which invariably proves fatal.

In this case the original mischief was such, as precluded all chance of the patient's recovery; but it is extraordinary that he continued so long, without more distressing symptoms. In further proof that abscesses

in the brain, in consequence of external injury, are less likely to prove fatal in the first instance, than inflammation of the pia mater, I shall subjoin the following case, which occurred at Portsmouth in the year 1781.

A marine, aged nineteen, on the evening of the 10th of February, while centry in the dock-yard, received a gun shot wound in the forehead. He was immediately carried to Haslar Hospital. It was found, that the ball had passed through the upper part of the frontal sinus, and was lodged within the skull, on the anterior part of the left hemisphere of the cerebrum, a little to the left side of the crista galli of the ethmoid bone. The surgeon of the hospital perforated the cranium with the trepan, a little above the hole made by the passage of the ball. In performing this operation the dura mater was cut through, for about one third part of the circumference of the circle. The ball was extracted. Immediately after the accident the patient had been delirious, but at the time of the operation he was sensible,

although exceedingly irritable, and outrageous from the pain.

He had a tolerable night, and continued well the following day. On the 12th, he was in a state of imperfect stupor, with a full and hard pulse. A fungus arose from the dura mater, at the part which had been wounded by the trepanning: but the space in which the ball had been lodged continued a deep cavity. He was bled, and a blister was applied to his head. On the 13th he was better during the day, but became delirious at night.

On the 14th he was somewhat comatose, moaned frequently, and seldom answered a question. There was a foetid discharge from the nose. On the 15th he was worse, and at two o'clock on the morning of the 16th he died.

On dissection, no appearance of inflammation was found on that part of the dura mater, which had been perforated by the ball; but a small portion of coagulable lymph was found on the external surface of that membrane, where it had been cut by the trepan. The dura mater between these two

parts had become dead; and at the edge of the dead portion a process for its separation had commenced. The cavity, in which the ball had been lodged, was filled with dark coloured pus, and a similar fluid was found in the frontal sinus, from whence it had descended into the nostrils. The internal surface of the dura mater covering the left hemisphere of the cerebrum, backward from the part which had been cut by the trepan, was covered with coagulable lymph, and thin dark coloured pus was found between it and the pia mater. The falx, and the dura and pia mater covering the right hemisphere of the cerebrum, were in a natural state. The injury from the ball had occasioned the formation of an abscess in the left anterior lobe of the cerebrum, immediately behind the frontal sinus. On washing away the matter, the surface of the brain next the abscess was found to have a sloughy appearance, and to be marked with red points. A little further on in the substance of the brain, the sloughy appearance was less, and the red points were more numerous: a

little beyond this, the substance of the brain was in a natural state, and the vessels were not more turgid with blood than is usual. In every other respect the brain had a natural appearance.

XI. Case of Abscess in the Brain, which discharged Matter by the Ear; with Observations on the different Effects produced by Pressure upon the Brain and by Loss of its Substance. By B. C. BRODIE, Esq. F R. S. Lecturer on Anatomy, and Assistant Surgeon to St. George's Hospital. Read July 4, 1809.

THE following case, which lately came under my observation, appears to illustrate some circumstances relative to the pathology of the brain, and is therefore laid before this Society.

Master S. from the time of his being a child was subje to sick head-aches. He was observed to have a slow apprehension; but his judgment was correct, and what he learnt was thoroughly retained. In other respects, nothing unusual was noticed in regard either to his understanding or general health.

When about two years of age, a discharge of matter was observed from his left ear,

and he became deaf on that side. The discharge from the ear was nearly constant. In March 1809, when he was fourteen years of age, it was not at all lessened; and a small fungous excrescence was observed within the external meatus. At this time I was applied to, and recommended the application of citrine ointment, mixed with an equal quantity of lard, to the fungus, on the supposition that the disease was confined to the ear. The discharge did not abate, and in the April following Mr. Home was consulted, and recommended the citrine ointment to be applied daily to the fungus, by means of a camel's hair pencil. Under this treatment, in the course of two or three weeks, the discharge wholly ceased; but he was now seized with a violent pain in the diseased ear, and left side of the head. The application of the ointment was omitted; in a few days the pain abated, and the discharge from the ear returned.

After this, the citrine ointment was again applied. About the 20th of May, the discharge from the ear entirely ceased, and henceforth only returned at intervals, and in

a slight degree. A week afterwards, he was seized with a pain in the head, so violent, that he screamed, and said he was going mad. The pain in the head recurred daily in a greater or less degree, but he was still able to associate with his school-fellows as usual, though not to attend to his studies. On Saturday the 17th of June, he suddenly complained of excruciating pain in the head; he immediately after became insensible, and remained so for some time. On the following day he was drowsy, the pupils of his eyes were dilated, and his pulse beat only from thirty to forty times in a minute. On Monday the 19th of June, Dr. Maton saw him, and directed a blister to be applied to his head, and that he should take some purgative medicines, as his bowels were extremely bound. In the evening he was somewhat better. On the following day, the 20th of June, I saw him, and found his pulse beating sixty times in a minute. He said he was sleepy, but he was perfectly sensible, and the pupils of his eyes contracted on exposure to light. On Wednesday the 21st of June, the symptoms were again

aggravated, and on the following day he became comatose, and died.

On inspecting the body after death, I found the following appearances.

The parts of the head, external to the cranium, were in a natural state.

The vessels of the dura mater were turgid with blood.

The vessels of the pia mater were also turgid, and the surface of the tunica arachnoides covering that membrane was perfectly dry, as if it had been wiped with a cloth.

The ventricles of the brain contained about two ounces of watery fluid.

In the left hemisphere of the cerebrum there was a cyst, about three inches in diameter, of a pulpy consistence, thick, and vascular, and containing a thick, dark coloured pus.

The lower part of the cyst rested on the petrous portion of the temporal bone. There was a very small opening through the cyst, dura mater, and bone, forming a communication between the cavity of the cyst, and the meatus auditorius externus.

The substance of the cerebrum, imme-

diately surrounding the cyst, was of a yellow colour, and much softer than is natural.

That an abscess should form in the brain, and discharge matter by the ear, is certainly not a frequent occurrence; nevertheless, some other instances of this kind are on record.* But, in the case which I have related, there are some circumstances which render it particularly worthy of attention.

The abscess in the brain must have begun to form at a very early period after birth, since it had occasioned ulceration of the bone, and had discharged matter by the ear when the patient was only two years of age.

As long as the discharge continued from the ear, no urgent symptoms occurred: when it ceased, violent pain in the head took place, which abated as soon as the discharge returned. On the discharge again ceasing, the pains in the head recurred, and at last symptoms of pressure on the brain came on, and the patient died.

The partial evacuations from the ear prevented the rapid accumulation of matter; so

* See Morgagni Epist. Anatom. xiv. and Duncan's Med. Commentaries.

that the substance of the brain was removed in proportion as the abscess encreased in size. Notwithstanding so large a portion of the cerebrum was destroyed, that circumstance had not been productive of any alarming symptoms. Those, which afterwards occurred, evidently arose from pressure on the brain, in consequence of the cessation of the discharge from the ear.

From this case we may conclude, that pressure on the brain is, on the whole, a more serious injury than the loss of substance in that organ. This is contrary to what analogy would lead us to expect. The truth of the conclusion does not, however, rest on this individual case. We find many instances of injuries of the head, in consequence of external violence, which shew, that the immediate symptoms produced by a fracture with depression, or an extravasation of blood within the cranium, are, on the whole, more dangerous than those produced by wounds and loss of substance of the brain, unattended by pressure.

Where the cranium is completely ossified, and incapable of dilatation, the effusion of

even a small quantity of water into the ventricles is sufficient, by its pressure, to occasion disarrangement of the functions of the brain and death: but in the infant state, where, from the bones being not yet united, and from the cranium being therefore capable of dilatation, a large quantity of water may be accumulated without occasioning much pressure, we find that a hydrocephalous patient continues to live, when nearly the whole brain is destroyed by disease. In a case of hydrocephalus, which came under Mr. Home's observation, on examination after death, the medulla oblongata, and a small medullary pulp behind the orbits, were the only parts of the brain which were found remaining.

A distinction is usually made between the effects of sudden and gradual pressure on the brain. Tumors and chronic abscesses within the cranium often attain a very considerable size, before any signs of disease occur; and hence it has been inferred, that, when pressure takes place gradually, the brain is capable of supporting it to a much greater degree, than when it takes place

suddenly. These instances, however, do not warrant the conclusion. The slow growth of a tumor allows the absorbents to remove the brain, sufficiently to give room to the newly formed substance, without the symptoms of pressure being produced. On examining such cases after death, we find, from parts of the brain retaining their natural positions, that it has not been much compressed, although much of its substance has been destroyed.

All these facts tend to establish the proposition, that pressure on the brain, on the whole, affords more impediment to its functions, and is more likely to lead to a fatal termination, than actual loss of substance.

The dryness of the tunica arachnoides, in the case which I have described, merits notice. Dr. Baillie has observed a similar state of the pericardium;* and I once before observed such a state of the tunica arachnoides in a body, which I examined in Dr. Baillie's presence. It is remarkable, that there should have been so total a want of secretion in the

* Morbid Anatomy, chap. 1.

membrane investing the brain, when there was a preternatural quantity of water in the ventricles, the secreting membrane of which is in reality a continuation of it.

XII. *A Case of Paralysis, from Enlargement of Bone, cured by the Use of Mercury.*

By JAMES WILSON, Esq. &c. Read
October 3, 1809.

IN November, 1806, I was requested by a surgeon of my acquaintance to visit a gentleman, whom he had occasionally attended during a long and severe illness. He at the same time gave me the following account of the patient's case.

In the spring of the year 1803, when the influenza was very prevalent, Mr. C—, a muscular man, about twenty-eight years of age, and of rather a sanguineous temperament, was attacked with a very severe deep-seated pain in the orbit of the left eye. A physician of eminence was consulted, by whom a rigidly antiphlogistic plan was recommended: this was persevered in for a considerable time without benefit. The case was then deemed nervous, and medicines of that class in large quantities were employed, and the patient was ordered to remove to Hampstead for the

benefit of the air. This plan not succeeding, other medical opinions were taken, and various remedies tried; but the patient gradually became worse. The sense of hearing in the left ear was now totally lost. The levator palpebræ muscle of the left side became paralysed, and a great degree of strabismus was produced by the rectus externus having also lost its power. The pupil of the left eye became much and constantly dilated, and the sight of that eye was lost. The right angle of his mouth was permanently drawn to the right side. An extreme hoarseness took place, and his articulation became so indistinct, that he could not be understood even by his friends. He lost the power of swallowing solids, and swallowed fluids with very great difficulty, as the attempt brought on a distressing sense of suffocation. A vessel was constantly placed at his side, to receive the saliva, which he could neither swallow, nor eject from his mouth, and which he therefore endeavoured to push out with his tongue. His bowels were most obstinately constipated, requiring the frequent use of drastic purges.

Upon visiting the patient I found, that his right arm and hand were folded up, and were, with the leg of the same side, in a state of complete paralysis. Very violent pain in the orbit of the left eye still continued, and there were now also considerable pains in the vertebræ of the neck, and at the top of the shoulder. When in bed, he could not raise his head from the pillow; he could scarcely sleep at all, and had no respite from excruciating pain; in short, his dissolution was hourly expected. I learned also, that before the commencement of the disease, he had had, at two or three different times, chancres and incipient buboes, and for these had used mercury until the symptoms disappeared, and the surgeon who attended him pronounced his cure to be complete.

In the summer preceding his illness he strained his back in leaping; a short time after, a buboe formed in the right groin; this was particularly attended to, under the supposition that it might prove venereal. It suppurated, and healed without mercury having been used.

Observing something particular in the

figure of one of his legs, I requested leave to examine it; when the stocking was removed, I perceived a cicatrix of a considerable extent, and that the tibia was much enlarged. He did not, however, feel any pain in this bone. He expressed to me in writing with his left hand, that several years ago he had received a severe blow on this leg, and that a large piece of bone had come away; he could not recollect whether he took any mercury at that time, and he did not think that his surgeon considered the disease in the bone as venereal. He did not remember having had, at any time, spots on his skin, or a sore throat. His present ailment, he said, had never been considered, by any of the medical persons whom he had consulted, as venereal, nor had the use of mercury ever been proposed for its cure.

On examining his neck, I found several of the vertebræ much enlarged. I discovered also a large swelling in the acromion scapulæ of the right side, and a considerable enlargement of the whole of the spine, and the greatest part of the superior costæ, of this bone. As the muscles were wasted, I

could readily perceive a swelling in the os brachii, a little above the attachment of the deltoid muscle. The right clavicle possessed at least three times its usual thickness.

From the possibility of these swellings being venereal, I felt justified in proposing the immediate use of mercury. The patient's relations were apprehensive that his extreme weakness, and the apparently rapid approach of death, would render the experiment useless; but willingly consented to the attempt being made, as without something being done, and done quickly, death seemed inevitable.

Accordingly, one drachm of the strong mercurial ointment, with five grains of camphor, was rubbed upon his skin every night; and a seton was inserted in the back of his neck. In four days his mouth became affected from the mercury: in ten days he swallowed with less difficulty; he slept well, and his pains were nearly gone. In a fortnight, the enlargement of his clavicle was evidently lessened, and the muscles much fuller and firmer. He had also recovered his speech, so far as to make himself under-

stood. The quantity of the ointment was now increased to a drachm night and morning, and the use of it was continued for eleven weeks; towards the latter part of which time, when he could swallow with ease, he took about eight ounces of the compound decoction of sarsaparilla daily, and now and then some preparation of the Peruvian bark.

During this course, although the patient's mouth was affected with a considerable degree of soreness, he gathered strength and health daily, and before it was discontinued he had grown fat. His muscles had acquired very nearly their original plumpness and strength, and the limbs their former capability of motion. The pains were wholly removed; and the thickening of the bones was very much reduced.

His power of swallowing, and of moving the right extremities, seemed at first to increase, in the same proportion as the swellings of the cervical vertebræ decreased. But though these swellings afterwards became stationary, the powers of the muscles have been completely restored. His cure, with

the following exceptions, is perfect, and has remained so for more than two years.

The pupil of the left eye is still more dilated than that of the right, and the eyelid cannot be raised quite so high as formerly; but he can distinguish objects and colours in some measure with the left eye, and even small objects when he uses plain green spectacles, and employs that eye only. When he uses both eyes, his vision is confused, as he then sees objects double. He still speaks with a very hoarse voice; but his articulation is sufficiently distinct.

XIII. *Cases and Observations, which shew that Inflammation is sometimes communicated from the Dura Mater to the Pericranium.* By EVERARD HOME, Esq. &c.
Read September 3, 1811.

IT is stated in Mr. Pott's Treatise on Injuries of the Head, that when the effect of the injury has been such, as to detach the dura mater from the skull, it also produces a separation of the pericranium from the skull of the same extent. This observation is fully confirmed by the experience of every practical surgeon; but that a diseased state of the dura mater produces a similar affection of the pericranium, without the skull itself having undergone any material change, is a fact, which, I believe, has not been recorded; and although it may have been frequently suspected, no proofs have been adduced to shew, that it has really taken place. It is with a view to establish this fact, that the following cases are laid before the Society.

CASE I.—An officer in the army, who had gone through repeated courses of mercury, and had been twenty years in India, after exposure to great fatigue, and the heat of the climate, was attacked with a swelling on the right parietal bone, which was attended with pain of the part, and severe general head-ache. This swelling was considered by his medical attendants as a venereal node, and mercury was prescribed. Under its use the symptoms were aggravated, and the swelling encreased to the size of a pullet's egg. It then began to diminish, and another appeared at some distance. This, after encreasing to a size somewhat less than the former, also gradually subsided. These tumors were hard at their base, but soft in the centre, and most prominent part, particularly after they had acquired their greatest size. When they began to diminish, an undulation in them was very distinct; and after they had subsided, a pit was felt in the scalp, as if the skull in that part had been removed. This arose from the thickened state of the surrounding pericranium. There was a succession of these tumors; some taking several

months to go through the same process, others a shorter time; while two or three of them broke at the centre, discharged a thin fluid, and afterwards healed. After repeated courses of mercury, and change of climate, obtained by going to Ceylon and the Cape of Good Hope, the patient came to England, extremely emaciated, and put himself under my care. The history of the complaint, and the nature of the present symptoms, removed from my mind every idea of its being venereal, or having had its origin in the venereal disease. Different plans of treatment, with a view to restore his health, were adopted, but no advantage was derived from them. He went to Bath, and one evening while there was seized with a fit, which alarmed his friends, who wrote to me for advice. I explained the impossibility of my directing what should be done at such a distance from the patient, and desired that Dr. Parry might be consulted.

After this he had a second fit. At that time there were two tumors on the head, which were very painful, and tender to the touch. Dr. Parry advised cutting down on

them, so as to divide the pericranium. This operation was performed, and the symptoms immediately began to abate. The wounds healed without any exfoliation taking place, and he got perfectly well. He remained a year in England, and then returned to India. In that climate, excess with respect to wine or fatigue brought on fits, which were considered as epileptic. At first they occurred once in two or three weeks: but after he had been more on his guard with respect to his mode of life, the intervals became longer. He returned to England after an absence of seven years. For the last three years of that time, the fits had returned only once a year, and had always been the result of imprudence. I saw him a few months after his return, when he continued well, but have had no opportunity of seeing him since.

CASE II.—An officer in the navy, who had gone through repeated courses of mercury, and had been much exposed, while in the West Indies, to the heat of the sun, and great fatigue, became affected with violent head-aches, chiefly on the right side. The

scalp covering the right parietal bone became tender to the touch. At the same time there was a severe pain in the left leg, the seat of which was always on the outside, but sometimes higher and sometimes lower; and the part affected was always more or less swelled. These complaints were considered by the surgeons in the West Indies as venereal, and he was put under a course of mercury. The symptoms at first appeared to be relieved by it, but they became afterwards more severe during its continuance. In this state he came to England, and placed himself under my care.

When I first saw him, there was an evident projection from the middle of the right parietal bone, which was tender to the touch; there was also a swelling on the outside of the fibula of the left leg, which was painful when pressed. He was liable to violent head-aches in the day, and at night was entirely deprived of sleep, from the feelings of distress in his head, which sometimes brought on delirium. Considering the case to be similar to that which has been stated, I proposed dividing the pericranium where it was

thickened, as the only means of relieving the symptoms. This was objected to, as two other surgeons had given an opinion, that the disease was decidedly venereal, and that mercury was the only remedy. One of these gentlemen was so convinced of the correctness of his judgment on this point, that he declined meeting any one in consultation, who was of a different opinion. Under these circumstances, I thought it right not to perform any operation, without further consultation. Mr. Cline and Mr. Griffiths were therefore desired to meet me, and the evidence adduced of the benefit derived from dividing the pericranium, in the instance which has been stated, led them to agree to the propriety of its being performed on the present occasion.

Upon cutting down to the skull, the pericranium was found about one-fourth of an inch thick, and of a structure approaching to that of cartilage. It was completely divided to the bone, and the wound was dressed to the bottom with dry lint. The bleeding during the operation amounted to half a pint. He felt immediately relieved, and that night

had more sleep, than during any preceding night for many months. In a few days, the pain in the leg also was much diminished: In three weeks, the wound was healed and he went into the country. He continued free from any complaint for seven or eight months, with the exception of slight headaches, (which came on when he was guilty of any excess with regard to wine or exercise) and occasionally slight uneasiness in his leg. At the end of that period, he was attacked more severely with pain in the head, and came to London. One night after dining out, and drinking too much wine, he had a slight fit, in which he was for some minutes so far insensible, as not to have a recollection afterwards of what had passed. In a few days he recovered from this attack, and now continues tolerably well, although he pursues with avidity his favourite amusement of hunting.

CASE III.—A gentleman, twenty-nine years of age, who had gone through repeated courses of mercury, in the summer of 1801, experienced pains in his extremities, particularly in his right arm. These were consi-

dered as rheumatic. He employed fomentations, and the warm salt water bath, without receiving any benefit. He afterwards tried other external applications, but still the pains continued severe. In January 1802, he took mercury internally in the form of pills, in sufficient quantity to produce salivation. As soon as his mouth became affected, the pains left his limbs, and he was seized with a severe head-ache. At that time there was no tumor on any part of his head, nor had the pain a fixed situation. It was a general head-ache, and continued after he left off the mercury, without any abatement.

In May 1802, being then in Edinburgh, he was directed to go through a course of mercurial frictions. This lasted upwards of three months, during which time his mouth was very much affected. As soon as his mouth became sore, the pains in his head ceased; and he had no return of them, until two months after the termination of the mercurial course. He then had a fit, which was considered as epileptic, and after this fit he had a return of head-ache, which was not so severe as formerly. Six weeks afterwards

he had another fit, in consequence of which he was directed to undergo a second course of mercurial frictions. This course lasted four months, during which time he had no return of the fits; but while under the use mercury, he was again attacked with a severe pain in the head. The pain was now confined to the left side, and there was an evident elevation of the scalp, where the pain was felt. On the elevated part of the scalp there were several tumors, some of which were as large as nutmegs. Towards the end of the mercurial course the pain in the head became much less, and the tumors nearly disappeared.

In May 1803, he had another fit, which was more severe than either of the former: he did not recover his speech and recollection perfectly for two days. He was still in Edinburgh, and it was agreed by his medical attendants, that he there should undergo another mercurial course. He began this course on the 1st of June, and persisted in it for four months. Towards the end of this course, the pain in the head returned, attended with similar elevation of the scalp to that

formerly observed, and he now also had a considerable swelling of the right elbow, accompanied with severe pain.

On the 14th of November, 1803, he came to London, and put himself under the care of Dr. Baillie and myself.

On examining the head, there was found a considerable tumefaction of the whole left side of the scalp, particularly over the parietal bone. I proposed that an incision should be made through the most prominent part of the swelling, down to the bone, in which Dr. Baillie coincided, and the operation was performed on the 1st of December, in Dr. Baillie's presence.

On cutting through the scalp, where it covers the left parietal bone, the periosteum was found to be about half an inch thick, so that I became apprehensive lest I should be dividing the cranium in a softened state. I therefore desisted, and applied the lapis septicus. When the slough came away, an inch square of the bone was exposed, which had an irregular surface, but its natural hardness. In a fortnight the thickening of the pericra-

nium had entirely subsided: granulations covered the bone, and the wound healed.

All the symptoms were relieved immediately after the operation, and the patient on the following day wrote a long letter, which he had not been able to do for several months before. As the swelling of the arm was considered as scrofulous, he took, by the advice of Dr. Baillie, sarsaparilla in considerable doses. The swelling had entirely subsided before the 6th of January, on which day he quitted London.

He continued well for six months; after which period he occasionally lost the power of articulating particular words for a minute or two: this became more and more frequent. In the middle of June 1806, he was seized with a fit similar to those which he had formerly experienced, but without any of the other symptoms. A blister was now applied to the crown of his head. He went to drink the waters at Gilsland, and after staying there six weeks returned to Scotland. A blister was applied to the nape of his neck and kept open; and he lived very abstemiously. He was troubled with head-aches,

but not so severely as formerly. They lasted two or three days at a time, and then subsided. Occasionally he was attacked with a total incapacity of speaking, which continued one, two, or three minutes. It was attended by a humming in his ears and other unpleasant sensations; he was, however, sensible at these times.

On Sunday the 8th of February, 1807, he had another fit. It was very severe, and was preceded by an inability to speak. He was bled copiously. In about a week a discolouration appeared on the scalp over the temporal muscle. This made him resolve on coming to London for advice. During his journey he had another fit similar to the preceding. He arrived in London on the 8th of March, 1807. On the 12th I met Dr. Baillie in consultation on his case; when it was settled to lay bare a portion of the skull, and keep it exposed until an exfoliation took place. On the 21st an incision was made through the temporal muscle, and the bone exposed. The bleeding was considerable at the time; and afterwards there was great difficulty in keeping the wound open to the bone, the action of

the temporal muscle throwing out the dressings. The lunar caustic was therefore applied daily to the edges of the wound down to the cranium. On the 6th of May, a portion of the outward table, about one-tenth of an inch square, came away, as did a similar portion on the 19th. On the 26th of May, the dura mater was exposed, by a small portion of the inner table having exfoliated, not much larger than the end of a common probe. This was succeeded by a violent head-ache attended with fever. On the 27th, in the morning, he lost his voice, and a few minutes after became insensible. These symptoms, however, went off in a few hours, leaving only a slight head-ache, that lasted two days. After this the wound in the scalp was allowed to heal.

On the 28th of June he returned to Scotland. On the 5th of July he had a fit similar to those, which he had formerly suffered; and he had similar fits on the 12th and 22d of the same month. They recurred on the 27th of August, and on the 11th and 28th of September: and during the whole summer, from the time of his leaving London, he

laboured under a severe and constant headache, although he abstained from animal food, wine, and exercise, and was frequently bled by leeches, or on the system.

In the beginning of October, he again came to town, and put himself under my care. I proposed that a portion of bone should be removed by the trepan, near the part where the original operation was performed. Dr. Baillie and Mr. Cline were consulted, and agreed with me respecting the propriety of the operation.

On the 16th of October, the trephine was applied immediately above the cicatrix of the wound made by the former operation; and a piece of bone an inch in diameter was removed. During the operation, a remarkable degree of hæmorrhage took place from the diploë. On examining the portion of bone removed by the operation, it was found to have an unusual number of orifices for the passage of blood vessels, and to be rather thicker in substance than common, and softer in its texture. When the dura mater was exposed, instead of having the usual appearance, it was observed to be red and vascular, in a

degere much beyond what Dr. Baillie, Mr. Cline, or myself had ever seen. During the night after the operation, and the following day, he had a severe pain of the head, attended with confusion of mind. At three o'clock on Sunday morning a hæmorrhage came on from the wound; but no vessel could be discovered, from which the bleeding took place. At nine A. M. he had a fit, in the beginning of which he articulated indistinctly and talked wildly. He then became violent, got out of bed and walked about the room. In the course of two hours he was perfectly calm, and quite free from head-ache: but the hæmorrhage continued in some degree till the evening. He was composed during the night. On the following morning he had a slight pain in the head. In the evening the pain was greater; the pulse was 100, and strong. Fifteen ounces of blood were taken from his arm; and he was directed to take *infusum rosæ* with *magnesia vitriolata* every six hours. The blood was much cupped, and had buff on the surface.

On Tuesday, October 20, he was free from pain, and had a quiet pulse. From this time

no symptom of any consequence occurred. The wound healed about the 30th of November, and the patient continued free from any affection of the head, although he had been tormented for several days, by severe pain in the canine tooth of the right side of the upper jaw. The tooth was found to be much decayed, and was drawn, which completely removed the pain. On the 5th of December, although well in other respects, he several times made use of one word in conversation, when he meant to employ another, for instance, a glove for a shoe. On the 7th he went a mile out of town into other lodgings, and was very well all the next day; but on the 9th, all at once, between eleven and twelve o'clock, a violent palpitation of the heart came on. I happened to be present, and bled him; while the blood was flowing, he appeared less agitated: about eight ounces were taken away. As soon as the arm was bound up a fit came on, which lasted a few minutes. After this he jumped up in a delirium, and walked about the room. I was desirous to get him to his bed, which I knew he would go to when the fit went off; I therefore

lay down upon a bed to see what effect this would have upon him. He came to me, seemed to pity me, then went away, and frequently returned with apparent anxiety, although unable to speak. At last, he asked indistinctly how I did, and then was persuaded to go to bed, soon after which he completely recovered his speech. The fit lasted altogether about half an hour. The blood proved to be very buffy, and contracted as much as pleuritic blood. The pulse continued strong, and in the evening he lost six ounces of blood by cupping. On the 10th, the head-ache continuing, with a severe pain at the root of the nose, he was again bled at the arm, to the quantity of twelve ounces; this blood was less inflamed than the former. He continued languid, but without palpitation, till the 15th, when the pulse rose, and all the previous symptoms of a fit were coming on. He was bled to about six ounces; the blood was less buffy. He was ordered *tinctura digitalis* by Dr. Baillie, in the dose of eight drops thrice a day. On the 21st the pulse rose again, attended with the pain on that side of the head, formerly com-

plained of, and at the root of the nose. He was bled to about five ounces; the blood was not buffy, and the agitation went off. The dose of digitalis was gradually increased to fourteen drops. January 2d, he had no return of palpitation; his pulse was tranquil, and only eighty in a minute; he now took twenty drops of tincture of digitalis three times a day.

From this time he continued tolerably well, until Sunday, January 17th, 1808, when a violent pain in the head, and some of the other symptoms came on, which usually preceded a fit. Some blood was taken away from the arm in the morning, and again in the evening; and on the following day five leeches were applied to the temples. In consequence of this treatment no fit ensued. On the evening of February 10th, he was seized with a want of speech; but this lasted only a short time, and no other symptoms ensued. On the 24th, he had a palpitation of the heart, attended with a quick pulse, but no other symptoms. On the 27th, he was seized with a want of speech, and a

palpitation of the heart, with a very quick pulse, but no fit. On the 2d of March, he was seized with a violent pain in the head. Blood was taken away from the arm, both in the morning and evening, which strongly indicated inflammation. The head-ache subsided, and no fit followed. On the 9th, he had a severe head-ache, which was relieved by the application of a blister to the head. On the 13th, he had a fit; this left him with a violent head-ache, which was not relieved till after his being bled once from the arm, and once from the temporal artery, besides a blister being applied to the neck and head, and six leeches to the temples.

On the 1st of April, he was seized with a want of speech and a palpitation of the heart, but no fit. On the 23d, he left London for Scotland, whither he went by sea. During the voyage he was well; but after his arrival in Edinburgh he had a fit: after it was over he had no head-ache, and was as composed as ever in half an hour afterwards.

On the 12th of June he experienced a good deal of palpitation of the heart, and lost

his power of speech ; but these symptoms gradually subsided without any fit, or head-ache.

In the beginning of July he complained of severe head-ache, which was followed by a fit, but not so violent as formerly. Eleven days afterwards he had another fit, which left him with severe head-ache for several days.

In the beginning of August, he began taking the *tinctura digitalis*, in doses of ten drops three times a day : the doses were afterwards gradually encreased. This lowered his pulse, but without any benefit to his complaint, as while under its influence he had a fit, and was almost daily attacked with palpitation of the heart : the *digitalis* was therefore omitted.

After this period he had fits more frequently, sometimes two in a day : the fits were more severe, and left him in a state of great depression. Under these symptoms he gradually sunk, and died on the 6th of January, 1809.

The head was examined five days after death by Mr. Welsh, surgeon at Haddington,

who gave the following account of the appearances.

On laying aside the scalp, the pericranium, and bone itself, appeared unusually vascular, more particularly in the course of the lambdoidal suture, and occipital extremity of the sagittal. A strong membrane, supplying the place of the portion of bone removed by the trephine, had also a red and inflamed appearance. A very small and quite superficial carious spot was observed on the bone, near the edge of the trepanned part.

On dividing the cranium, the frontal bone, with the exception of its orbital processes, was found of an uncommon, and nearly uniform, thickness, through its whole extent. In the course of the sagittal suture, an inch from its posterior extremity, and occupying a space of three-fourths of an inch by one half of an inch, were found irregular bony spicula, projecting considerably. The membranes of the brain were every where preternaturally red and vascular. Under the upper edge of each parietal bone, at a little distance from the longitudinal sinus, was an ossified point in the dura mater, with distinct bony

spicula, projecting from its inner surface. A portion of the surface of the brain, immediately under, and corresponding in size with, the trepanned spot, had a purulent appearance, and about three quarters of an ounce of serum were found in the ventricles.

It is very probable, that in this case the first symptoms were produced by the inflamed state of the dura mater, which was discovered by removing a piece of the cranium by the trephine, and that the affection of the pericranium was the consequence of it; for when the inflammation returned upon the dura mater, the pericranium became again affected, although not in the same part. In this second attack, the vessels of the dura mater had become too much affected, to receive relief by any other means, than removing the pressure of the cranium to a greater extent than in the former operation. The appearances met with after death may be considered as the consequences of long continued disease.

CASE IV.—A gentleman came to London, to put himself under my care, in the end of February 1809. He brought the following

account of his case from a surgeon who had previously attended him.

He returned from India to England in the winter of 1807, on account of his health. At this time he had an eruption on the skin, with a swelling of one of the wrists, and was in a state of general debility. He went to Edinburgh for advice. It was suspected that his complaints were venereal, and he underwent a mercurial course, which lasted three months. At first, the symptoms yielded rapidly to the use of mercury; but towards the termination of the course, the swelling returned in his wrist, and remained after the mercury was left off.

Soon after the termination of the mercurial course, he complained of pains in the head, and had a good deal of fever. He took the decoction of sarsaparilla, which at first seemed to alleviate the symptoms; but their former violence soon returned. He lost his appetite, slept ill, and was extremely weak and irritable.

About the end of this year, being still in Edinburgh, he began another mercurial course, which lasted fifteen weeks; the

symptoms all subsided soon after the course commenced.

A short time after he left off taking mercury, the symptoms returned. There was now a thickening of the pericranium in several places: the wrist was swelled; he slept ill, and became emaciated. He again took the decoction of sarsaparilla, with half a grain of corrosive sublimate in the course of the day. Under this treatment the symptoms were again alleviated, but not removed.

When he first consulted me, there was a thickening of the pericranium on the right side of the head, and a painful swelling of the left wrist; he had violent head-aches, and great depression of spirits, and was in a state of great debility.

I made an incision through the scalp and pericranium down to the right parietal bone, where the thickening of the pericranium appeared to be greatest. The symptoms were soon alleviated. The head-aches left him, the thickening of the pericranium and swelling of the wrist subsided, and in a month after the operation he left London with very little complaint. The sore healed readily.

I saw him again, in September 1809. His head had been affected by a journey to Scotland, soon after the wound got well; this had been relieved by bleeding, and he had had no return of it in any considerable degree. He had lived abstemiously, and had avoided all fermented liquors. He complained of pains in his knees, legs and thighs, not unlike common rheumatism, and his pulse was unusually quick, but still his head was free from pain.

CASE V.—A. B. aged twenty-one, in the year 1792 had some venereal symptoms, for which he underwent a course of mercury. The symptoms were removed, but he was ever afterwards subject to attacks of giddiness, attended with much general bodily uneasiness, and a remarkable degree of dejection of spirits. These attacks occurred at longer or shorter intervals, and appeared to depend very much on the state of his bowels. He was naturally of a very costive habit, in consequence of which he took frequent doses of calomel. By his persevering in this practice, the above mentioned symptoms became much less, though they were never

entirely removed. In November, 1806, he had a chancre on the glans penis, for which he took hydrargyrus calcinatus, and confined himself to the house. His mouth became sore, and the chancre healed; but he was soon after attacked with a severe pain in the right side of his head, attended with a tumefaction of the scalp in that part. The pain was so severe as to prevent his sleeping, and at times his sight and hearing were considerably impaired. At the end of six weeks he left off the mercury; but the symptoms did not abate in consequence.

On the 29th of December he caught cold, and the symptoms were much aggravated. On the 2d of January an abscess burst in his right ear, the discharge from which continued for two or three days.

The pain and swelling were now diminished, but it was found that his mouth was drawn to the left side. In consequence of the appearance of this paralytic affection, he was kept low, and in three weeks it went off.

In a week after the bursting of this

abscess, the pain became as severe as before, and he now referred it to the left side of the head, over the parietal bone: the pericranium of that side was much tumefied. About the 14th of March these symptoms were much aggravated; and on the 17th he became deaf: the pain was so severe, that he could hardly sit up. On the 20th I saw him, and made an incision down to the parietal bone. The pericranium was found extremely thickened, and tender, so that the operation occasioned unusual pain.

He experienced immediate relief, and slept well at night, which he had not done during the whole progress of his complaint. On the 22d of March an abscess burst in his right ear, and discharged for two or three days. In the course of a week after the operation, the pain and tumefaction subsided; but he continued deaf, and complained of a noise and singing in his head.

The wound was dressed at first with dry lint, afterwards with lint moistened with diluted nitrous acid. In two months, a portion of bone of the size of a sixpence exfoliated. In six weeks more a similar exfoliation

took place; and after this the wound was allowed to heal.

Since the operation, his general health has been better in every respect, than it had been for several years before: but he continues deaf, and is troubled with an incessant noise in his head. There has been, however, no return of his head-aches.

CASE VI.—Mr. B. aged thirty-five, had gone through repeated courses of mercury for venereal complaints. In June, 1805, he experienced a pain in his left leg, on the anterior part of the fibula, attended with swelling. This did not abate under the usual remedies; and it was so severe, that it sometimes kept him whole nights without sleep.

In December, 1805, he first found a small lump on the right side of the crown of his head, which was extremely tender; he had also a severe pain below the left hip. He was put upon a course of mercury, and a month afterwards the tumor on the head subsided; in another month that on the leg likewise subsided. These symptoms, however, returned, although he persisted in the use of mercury. He then left it off, and

took sarsaparilla, with various other medicines ; but he found no relief, and therefore came to England. On his arrival at Falmouth, the tumor on the head was much encreased. He now took mercury for seven weeks, and during that time the pain in his hip returned. Within a week after the mercurial course was ended, the pains in the head returned, and the pain in the leg became more severe. In consequence of this he came to London, and put himself under my care. I proposed making an incision down to the cranium, and that his leg should be bound up in stripes of adhesive plaister. On the 14th of November, 1806, the scalp and pericranium were divided in the part which appeared enlarged. The edges of the divided pericranium were not materially thickened ; they receded from each other so as to expose more than half an inch of the surface of the cranium, which was white, moist, and honey-combed, and, when wiped dry, became immediately moist again, not with matter, but with a limpid fluid. The wound was dressed with dry lint. The pains in the head were immediately relieved, and he experienced

but little uneasiness from them during the ensuing week. They then returned, but were not so violent as before the operation. The surface of the exposed bone was examined at each dressing. It was always moist, and immediately after being wiped dry, a thin limpid fluid oozed from it's substance. Granulations formed at the edge of the wound, but the bone itself did not granulate, and yet had not the appearance of being dead. The pain in the leg was very much relieved immediately after the operation on the head: it was kept bound up in stripes of adhesive plaister, and the pain continued to abate.

On the 8th of January, 1807, as the bone had not undergone any change in its appearance, diluted nitrous acid was applied, with a view to destroy its texture; and this application was repeated five or six times. On the 15th of January, a small hole was observed in the bone, through which the pulsation of the brain was communicated to the fluid over it. The application of the diluted acid now gave pain; it was therefore used only twice in the ensuing week. The ex-

posed bone became loose, and was removed on the 21st of January. The pain in the head was almost immediately relieved, and in the course of a week it was entirely gone. From this time it never returned, except when he used any considerable bodily exertion, or was exposed to cold, in which cases he felt it in a slight degree. The pain of the leg also became much less. The sore on the head healed very gradually, and was not completely covered with skin until the 18th of April, at which time he had recovered his general health. He had experienced no return of complaint in his head, and the pain and swelling in his leg were entirely gone. In October, 1807, he wrote to me from Lisbon, that he had had no return of his complaint.

CASE VII.—A gentleman, between forty and fifty years of age, had resided in a hot climate, and had gone through a long course of mercury. Head-aches having afterwards attacked him, mercury was again given. He came to England, and took various remedies without receiving any advantage. A tumor, with a fluid in it, appeared on the

anterior part of the scalp on the right side. I cut down upon it; the pericranium was of twice its natural thickness; the exposed skull was white, and moistened with a limpid fluid: when this was wiped off, more fluid was seen immediately trickling through the bone. The pains in the head were instantly relieved. Nothing more was done than dressing the sore with dry lint, and in six weeks the small exposed piece of bone exfoliated, and the wound in the scalp healed. From that time the patient has continued perfectly well.

The two last cases differ from the others, in the bone having been so much acted upon by absorption, that there was a free communication between the dura mater and pericranium, through small apertures in the skull. But the original disease appears to have been the affection of the dura mater; and the symptoms, as well as the appearance of the external tumor, were exactly the same as in the other cases.

CASE VIII.—A woman, twenty-five years of age, in May 1806, was seized with a pain in her stomach, and a confined state of her

bowels. These symptoms were relieved by proper medicines, and she returned to her employment, as a house-maid, in a fortnight. In the course of a month the same symptoms returned, conjoined with a pain in her back, and feet, but more particularly in the latter. The symptoms became worse, and a paralysis of the bladder took place. She had no stools but from glysters, as medicines given by the mouth had no effect on her bowels.

The only cause, to which these complaints could be referred, was a tumor on the right parietal bone, which had appeared when she was first attacked, and had encreased ever since.

After suffering severely for three weeks, principally from the pains in her feet, she died.

On examining the body, no unusual appearance could be discovered in any part, except the skull. The tumor projected about half an inch above the bone, on the outside; and there was a similar tumor placed exactly opposite, on the inside of the skull, projecting the same distance inwards, and pressing on the middle lobe of the cerebrum. These

tumors were of a fibrous bony structure; they were simply in contact with the cranium, having no adhesion to it, and the cranium was sound between them, only unusually vascular.

These cases taken collectively, furnish a body of evidence, from which the following conclusions may be drawn.

1. The dura mater is liable to partial attacks of inflammation; and, as in most of the cases which have been recited, the patients had previously used mercury in considerable quantity, there is reason to believe, that the effects of that medicine predispose to such attacks.

2. In all the cases, there was an increased communication between the vessels of the dura mater and pericranium, by means of which the disease was communicated from the one to the other; and as the symptoms of affection of the brain preceded the external swelling, we must conclude that the dura mater was the part first affected.

3. In such cases, the portion of the cranium, through which the connecting vessels pass, becomes unusually vascular, and there-

fore is not deadened to so great an extent, by being simply exposed, or even by caustic applications, as under natural circumstances.

4. This diseased state of the dura mater, produces the symptoms common to pressure on the brain from other causes, varying in their violence according to the state of the membrane.

5. These symptoms, in the early stage of the disease, are capable of being relieved by cutting down upon the cranium, so as to remove the tension of the parts over it.

6. The most remarkable symptoms which occurred in the cases which I have related, are the pain and swelling of the leg in two of them, and of the arm in another, in all the three on the opposite side of the body to that of the disease in the head. Pain in the legs is a symptom, which I have met with in three cases of hydrocephalus, and pain in the feet was the only distressing symptom in the last mentioned case, where the pressure on the brain was very great; so that there is reason to believe, that the pain in the other cases was a direct consequence of the disease in the dura mater, more especially as it went

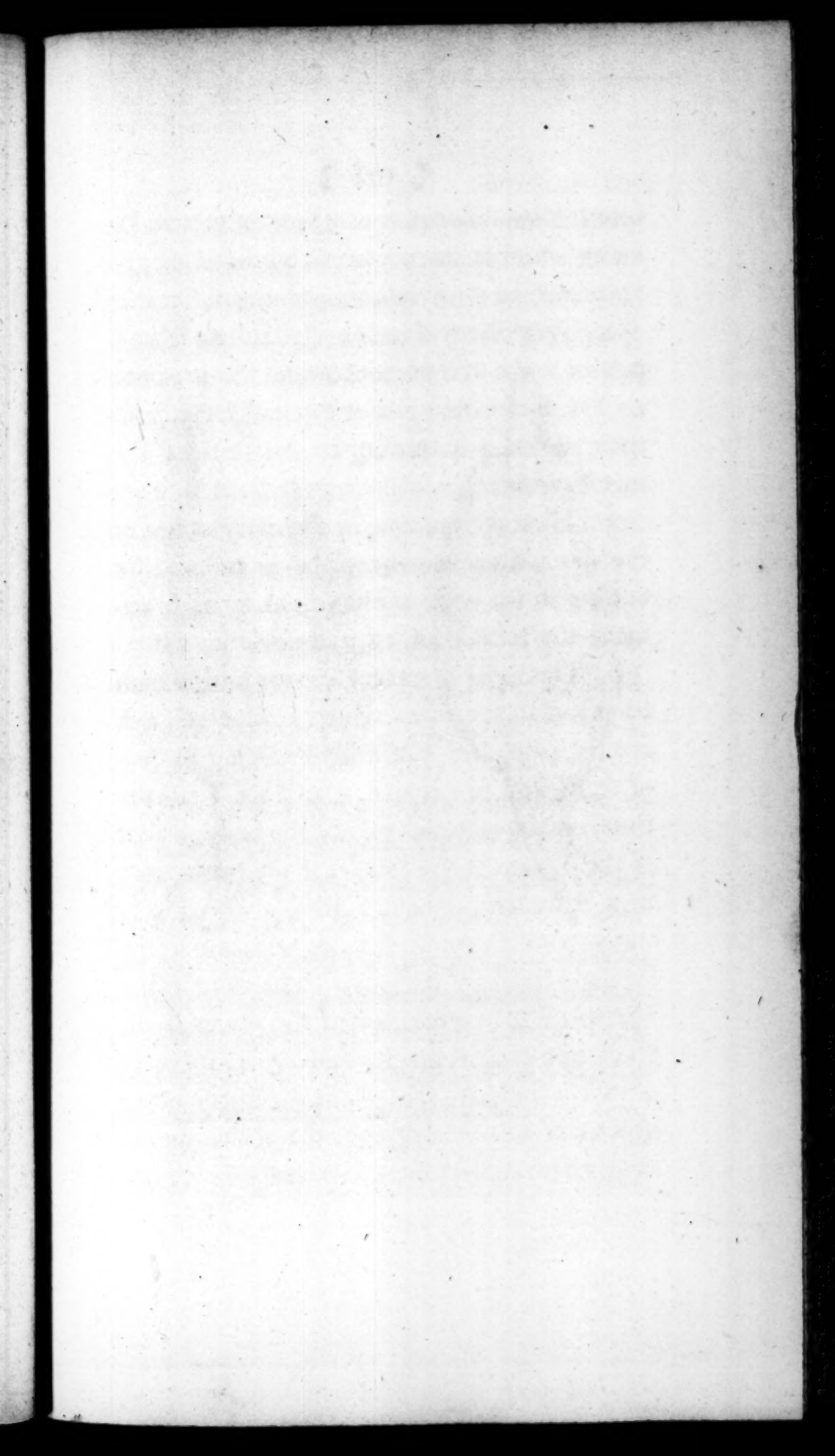


Fig. 1.

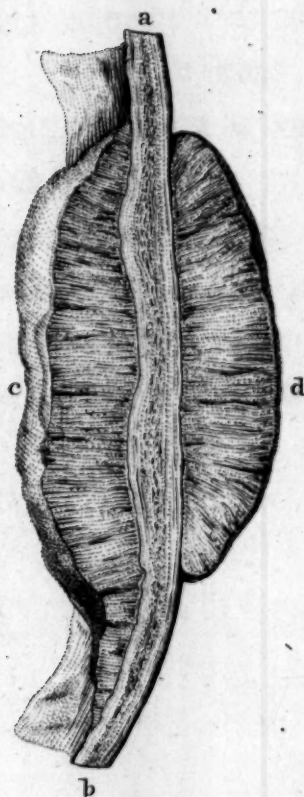
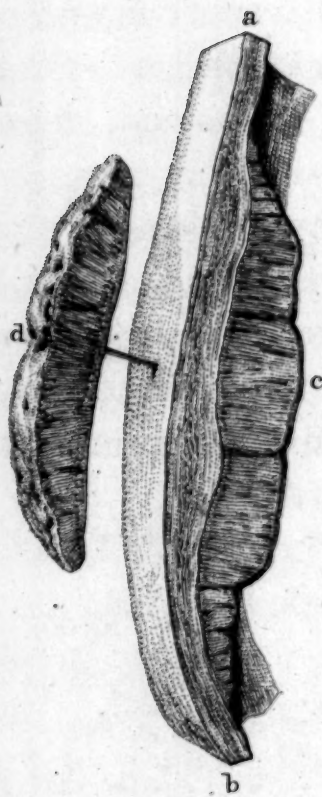


Fig. 2.



off when the head was relieved. If the swelling be admitted to have arisen from the same cause, it is a new fact, and the readiness with which it subsided, makes it probable, that it was as much dependant on this cause, as the pain in the feet in the last case.

The last case illustrates the subject, by shewing that corresponding portions of the dura mater and pericranium may be affected with the same disease, and that that disease may have made an extensive progress, although the intermediate portion of the cranium is in a natural state.

Explanation of Plate II.

This Plate represents the appearances of the disease mentioned in Case VIII.

Fig. 1. *a. b.* A section of a portion of the cranium. *c.* The bony tumor of the dura mater. *d.* The bony tumor of the pericranium.

Fig. 2. *a. b.* The corresponding section of the cranium. *c.* The bony tumor of the dura mater. *d.* The bony tumor of the pericranium detached from the bone.

XIV. *A Case of considerable Enlargement of the Cæcum and Colon.* By WILLIAM CHARLES WELLS, M. D. &c. Read February 2, 1808.

CAPTAIN B. B. entered into the sea-service of the English East India Company when a boy, and remained in it twenty-five years. He afterwards obtained a civil appointment from the same Company, and in consequence resided at Calcutta nearly ten years. In 1801 he returned to this country, being then fifty-two years old, with a constitution apparently but little injured by a warm and unhealthy climate. From his youth he had been subject to asthma, and as he found this disorder more troublesome in towns than in the country, he fixed his residence in a small village in Berkshire, about sixteen miles distant from London, and lived there unmolested by any disease, except the asthma, until he was attacked in the manner which I am going to describe.

On the morning of the 19th of April 1807,

while working in his garden rather thinly clothed, he was seized with a sense of coldness over his whole body, and a shaking of his limbs. These symptoms lasted between two and three hours; he then became hot, and began to feel a slight pain, and a burning, as he called it, in the pit of his stomach. I did not see him till the 24th of April, but he had been visited every day of his illness, except the first, by Dr. Pope of Staines, and once by Dr. Pitcairn. The pain and burning were now felt a little above the navel, to which place they had gradually descended from their original seat. They were, for the most part, not very considerable; but sometimes they were greatly increased, in consequence, the patient said, of substances being taken into his stomach which did not agree with it. He complained much of a feeling of distention and tightness in the abdomen, which, however, did not appear to be enlarged, and he always experienced relief from this feeling, when he expelled wind from his bowels, either upwards or downwards. Similar relief was obtained when fæces were discharged from

the rectum. His pulse was one hundred and six in the minute, full and soft; his skin a little hotter than in health, frequently somewhat moist, and at night sometimes covered with sweat. The tip of his tongue was dry and brown, but the back part of it was moist and white; his thirst was great, but his appetite for food not altogether lost. His belly, which in health used to be emptied twice every day, was now rather bound, unless he took medicines to loosen it. His stools had never the ordinary solid form, being for the most part of the consistence of thick gruel, but sometimes containing small lumps of hardened fæces, and now and then a little tough mucus. The crassamentum of blood taken at three different times from his arm had always assumed a form nearly globular, and had always been covered with a thick crust of a buff colour. In the beginning of his illness he had been a little delirious; but his mind was now perfectly calm and firm. He had never been sick at the stomach, except at the very commencement of his disorder. When I pressed his abdomen, he complained of no additional pain, nor

could I discover in it any thing enlarged, or preternaturally hard. He felt no increase of pain when he emptied either his bladder or rectum, and was never affected with hiccup.

My second visit to him was on the 14th of May; in the mean while he had been seen every day by Dr. Pope, and a second time by Dr. Pitcairn. He was now very feeble, and much emaciated in his face and limbs. His abdomen, which had become evidently enlarged soon after my former visit, was now considerably distended, and it was manifest that the swelling depended either wholly or principally upon the presence of air. The pain and heat in the abdomen had never ceased, but their seat had gradually descended nearly as low as the pubes, where they had been for some time stationary. His bowels were now more difficultly moved by medicine; what was discharged from them was still thin, but black, in consequence, it was supposed, of his taking a preparation of iron. His pulse was one hundred and eighteen, but neither small nor very feeble. Upon the whole it appeared to me, that his

speedy death was certain ; but I still thought that he would live a day or two. When, however, I was on the point of leaving his house, I was desired to see him again, as he had been suddenly taken worse. On going into his bed-chamber, I found him speechless, and was told that he had become so immediately after passing a stool. His skin was cold ; his pulse was fifty-five, and feeble, but with equal intervals, and not very small. About twenty minutes afterwards he died.

It had seemed very clear to Dr. Pitcairn, Dr. Pope and myself, that Captain B. had laboured under some organic disease in the abdomen, besides its distension from air ; but no one of us had been able to form any precise opinion respecting the part or parts principally affected. I applied, therefore, for leave to have the abdomen opened, which being granted, the dissection was performed on the evening of the following day by the younger Mr. Cline, who had been kind enough to accompany me from London for this purpose.

Immediately upon cutting through the integuments of the abdomen, a small quantity

of air escaped from it through the aperture. Mr. Cline thought at first that he had perforated some one of the intestines; but after a careful search, he could not find that he had injured any of them.

When the abdomen was completely laid open, its enlargement was seen to have arisen from a preternatural distention by air of the cæcum, and that part of the colon which had formerly constituted its transverse arch; I say formerly, because its figure was now considerably changed. For this intestine, after passing some way in the ordinary manner, obliquely upwards from the cæcum, turned directly downwards and ran parallel to the spine, in front of the other contents of the abdomen, nearly as low as the pubes. It then made a sudden turn directly upwards, and proceeded in this direction, in close contact with the descending portion, till it attained the ordinary height of the left part of the arch, when it turned to the left, and continued its way in the common manner. The diameter of the intestine throughout this unusual course was about four inches and a half; it began to lessen

near the left kidney, and in the sigmoid flexure was not greater than an inch. The size of the cæcum was equal to that of the most distended part of the colon. The diameter of the small intestines was less than common.

Both the cæcum and the distended portion of the colon were smooth and shining externally, and semitransparent, like an inflated urinary bladder. Their longitudinal and transverse bands were obliterated; no traces of them, at least, could be seen by candle-light, as the intestines were lying in the abdomen; and we were not permitted to remove any part of them.

On the internal surface of the convex or under part of the unusual flexure of the colon, that which in the ordinary position of the intestine would have been the concave part of the great arch, there were found numerous small superficial ulcerations, included in an oval space, whose greater diameter was about two inches. In this diseased portion a small fissure was discovered, through which air might be expelled by pressing the intestine. No part of the

solid or liquid contents of the intestines had passed through it.

Two of the convolutions of the small intestines adhered to the colon where it approached the pubes. On separating the adhering parts, a little pus oozed out ; but the intestines themselves were not there diseased. The blood-vessels of the inner coat of the stomach were somewhat more distended than usual, and portions of all the small intestines, particularly of the ileum, were here and there seen of a deep red colour externally. When these portions were opened, their internal surface was found to be inflamed.

The liver was of only half the ordinary size, but its structure was perfectly healthy.

No other unusual appearance was observed in the abdomen, which was the only cavity we were allowed to inspect.

It seems clear from the foregoing account, that the extraordinary length of the colon was the effect of disease ; since otherwise, both its longitudinal and transverse bands would no where have been wanting. Its position would necessarily be changed by an increase of its bulk ; and as the alteration in

bulk was gradual, so would also be that of its situation. In this way I would account for the gradual descent of the heat and pain in the abdomen, under which the patient constantly laboured; as the only part which, in consequence of our dissection, could be regarded as the seat of those symptoms, was the middle of the concave side of the transverse arch of the colon, the terms here employed being adapted to the natural situation of the intestine.

It appears to me more difficult to explain, how the matter forming the liquid stools, which the patient frequently discharged, was propelled through the colon during the greater part of his illness. For it cannot, I think, be supposed, that the colon could have contracted itself so far as to destroy its cavity, and the fluid *fæces*, in passing through some portion of it, must have gone up an ascent, the epigastrium, from his manner of lying in bed, having always appeared to be more elevated than the umbilical region,

XV. *Observations on the Dropsy, which succeeds Scarlet Fever.* By WILLIAM CHARLES WELLS, M. D. &c. Read November 4, 1806.

THOUGH the dropsy after scarlet fever occurs frequently in this country, none of our authors, as far as I know, have given a tolerably good account of it. I shall therefore attempt to describe it, partly from my own observations, and partly from those of Plenciz, a physician of Vienna, whose works, I believe, are little known in England. The whole, indeed, of what I shall say will not form a history of the disease; but possibly some person may hence be excited to fill up the chasms which I shall leave, and amend my errors; for by ceasing to be physician to the Finsbury Dispensary about seven years ago, I lost my chief opportunity of seeing this disease, soon after my attention had, by accident, been particularly turned towards it.

The dropsy succeeding scarlet fever seems to be of much more importance in some

places than in others. Dr. Cullen, in his First Lines, speaks of it as being of very easy cure, and for this reason, I suppose, bestows only a few words both upon its history and method of treatment: whereas Plenciz says, that in Vienna more persons die of it than of the original fever. In London it is certainly not so slight a disease as it appears to have been in Edinburgh, during the residence there of Dr. Cullen; nor has it hitherto been nearly so fatal here, as it was at Vienna in the time of Plenciz.

This species of dropsy is preceded several days, perhaps always by langour and peevishness, most commonly by a costive state of the bowels, and frequently by sickness and vomiting.

Its first appearance is generally on the twenty-second or twenty-third day after the commencement of the preceding fever. If I can trust, however, to the report of a careful mother, it may come on as early as the sixteenth day; and I know from my own observation, that its attack may be delayed to the twenty-fifth. When it has not appeared before the end of the fourth week,

I have always ventured to affirm, that its attack was no longer to be dreaded.

Infants and very young persons are almost the only sufferers from it. The oldest person whom I have known affected with it was a girl of seventeen years. The rare occurrence, however, of the scarlet fever in older persons, may be the reason of my not having observed the consequent dropsy in any of greater age.

When one child of a family has been attacked with this disease, the other children of the same family, who have lately passed through the scarlet fever, are more liable to become dropsical, than the children of another family, who have also lately laboured under that fever, but among whom no instance of the dropsy has yet occurred. This seems to depend, in part, upon a similarity of constitution derived from common parents, and, in part, upon a sameness in the external circumstances, in which children of the same family are commonly placed.

Plenciz says, that it occurs more frequently in winter than in summer, and in such as are exposed early to the open air, after having

passed through the fever, than in those who remain longer at home. In consequence of the latter observation, I have always advised, that those who have laboured under the scarlet fever should not go into the air, till four weeks have elapsed from the first appearance of that disease.

Contrary to what might have been expected, the dropsy often comes on after a very mild fever, and when the person, who had suffered it, appears to have nearly or altogether recovered his former health; while it frequently does not occur in those, who have passed through a very dangerous fever. I have indeed never seen it after those severe cases, which are known by the title of putrid sore throat. But Plenciz says, that it follows most commonly a considerable fever; and yet, after describing a dangerous variety of the fever, he adds, that he never saw the dropsy follow it. He observes also, that those who have suffered a great desquamation of the skin are the most liable to the dropsy.

Another fact in the history of this disease, that might not have been expected, and which, I believe, is taken notice of by no

author besides Plenciz, is, that the swelling constantly begins in the face.* Very often, indeed, it never goes farther, even in cases of great danger; when it extends beyond the face, it more readily affects the hands than the feet. Plenciz expresses himself as if the swelling always affected the whole body; but this is comparatively a rare occurrence with us.

I have seen only two patients on the first day of their disease. In one of them, a boy of eight years of age, the pulse seemed to my feeling, for I had no instrument to measure it by, slower than in health; in the other, a boy five years old, it was only fifty-eight in a minute. In both, the force and the intervals of the beats were somewhat unequal; in short, their pulse resembled very exactly that which occurs in the second stage of dropsy of the brain. On the third day, it began to be quick in both, and continued so throughout the disease. I never saw a case,

* I have since learned from Burserius, that this fact is taken notice of in a work published by a Society of Physicians at Florence, in the beginning of the last century. Plenciz's treatise was printed in 1762.

however mild, in which the pulse on the fourth day was not much quickened. But Plenciz speaks of it as a frequent occurrence, that no fever attends this disease; and says, that if there be fever, a favourable event is scarcely to be expected.

In the beginning of the disease the urine is scanty, and is, I believe, commonly turbid at the time of its being passed. I have in several cases allowed the urine in this stage of the disease to remain undisturbed for some hours, when it has assumed an appearance not hitherto observed by me in any other disorder. For there was at the bottom a very white flocculent matter, and above, a fluid of a pale white colour, and somewhat turbid; the whole resembling a mixture of soft curd of milk and whey, when the latter has floating through it very small particles of the curd. The patients, though they make but little water, have sometimes a frequent desire to discharge it, and in this case, a pain is felt by them in the region of the bladder when it is pressed. The urine, however, generally does not remain long scanty. A boy eight years old, in the course of the fifth

day made thirty ounces of urine, and he continued to make about that quantity daily, during a long and dangerous disease. After the urine has become copious, it is still often turbid when passed, from numerous small films floating through it. If such urine be suffered to remain unshaken for some hours, the films fall to the bottom, and the fluid above becomes clear. About the end of the first week, or beginning of the second, but sometimes later, the urine now and then assumes a pale red or pinky colour, and in this state resembles much the washings of raw flesh in water. Plenciz asserts, that this happens in the greater number of cases, and seems to say, that it takes place at the very beginning of the disease. But I believe him to be very inaccurate with respect to both of these circumstances. This red urine is also turbid when made, and rendered clear by standing. After a time, differing in different persons, the redness disappears; but the urine is still turbid when made, and continues to be so for a week or two. In one patient, into the circumstances of whose case I had frequent opportunities

of inquiring, the urine became red on the sixth day of the disease, and remained so till the twentieth; in another, who died on the ninth day, it became red on the eighth. I may mention here, in opposition to Plenciz, that when the red colour has once disappeared, I never saw it return. He affirms too, that the presence of the red colour ought to have no influence on our prognosis in this disease; but in my practice, the patients that have had this symptom have recovered more slowly, than those who were without it.

The urine in this state having precisely the appearance, which is given to healthy urine by dissolving in it the red matter of blood, it appeared to me probable, that the red colour of the diseased urine depended upon the presence of the same matter. To put this opinion to the test of experiment, I exposed some of the diseased red urine to the heat of boiling water, upon which there formed in it numerous flocculi of a dirty brown colour. These being suffered to fall to the bottom, the fluid above became clear, and of the colour of pale common urine.

There is, therefore, no doubt of the unusual colour being occasioned by the presence of the red matter of blood. Having seen, likewise, at the bottom of such urine, a number of small black grains, I washed a parcel of them, and infused them in water. This was soon made red; I then exposed the infusion to heat, in consequence of which similar flocculi were formed, and upon their subsiding the fluid appeared altogether without colour. These grains, therefore, must also have contained the red matter of blood. Such urine as that which I have just described, has never been observed by me in any other disease. I have sometimes also observed the urine, both shortly before and shortly after it has been red, to be of a brown colour. When such urine was exposed to heat, a brown coagulum was formed, upon the falling of which to the bottom, the fluid became pale. At the bottom of urine of this kind I have seen small brown grains. I once dissolved some of these in water, and boiled the solution, which in consequence separated into a brown sediment, and a colourless fluid.

There is another part of the blood, which I have almost always found present in the urine of persons affected with this dropsy, which is the serum. For in all the cases of it, except two that were very slight, in which I exposed the urine to the heat of boiling water, a flocculent matter formed in it, which, when the urine was not red, was of a white colour. The urine of one patient contained a little serum thirty eight, and that of another forty-two days, after the accession of the dropsy. Probably serum would have been found in the urine of both those patients, had it been examined at much later periods. After I had discovered this fact, I was no longer surprised at what had formerly seemed to me very strange, that a person, who was recovering from this disease, should eat heartily, sleep well, and apparently have no extraordinary evacuation, and should yet remain long very feeble.

Sickness, vomiting, and costiveness are often present during the dropsy, as well as before its attack; but I have not found that its danger is strictly connected with the degree of those circumstances. The most

obstinate costiveness I have met with in this disease occurred in a boy, in whom all the other symptoms were very slight. For the most part, the bowels, when bound, are loosened with little difficulty. The abdomen, even when not apparently swelled, often feels hard, and pain is often excited by the hand being pressed against any part of it.

Symptoms of extreme danger sometimes appear as early as the third day after the face has begun to swell. When the disease has continued mild for ten or eleven days, I never knew it to give much alarm afterwards.

The appearances of danger are various. Sometimes they arise from an affection of the head. A girl, eight years old, on the morning of the third day of the disease, complained of head-ach, which in the course of the same day became extremely violent. In the evening she was seized with convulsions, which, from the report of her mother, continued nineteen-hours, with scarcely any intermission. They then ceased, but returned in two hours. In this interval, it was dis-

covered that she was blind, and that her pupils were much dilated. The convulsions, after they returned, continued thirty-six hours; and the patient remained blind eight hours after they left her. This child recovered. Her swellings, which were confined to the face and hands, disappeared while the convulsions were present, but returned after they had ceased.* A boy, thirteen years of age, on the morning of the seventh day after his face had begun to swell, was seized with head-ach; in the evening his limbs were convulsed, and his sight was almost entirely lost. His memory, however, and the other faculties of his mind, seemed unimpaired. The convulsions ceased after half an hour; but they returned in an hour, and lasted again about half an hour. In this way he was alternately attacked, and relieved eleven times, in twenty hours. When the convulsions had ceased altogether, his sight became less imperfect; but his countenance was pale, and his pulse feeble and very frequent. The

* I have several times observed dropsical swellings from other causes than scarlet fever to disappear during the presence of convulsions.

following morning he died. It must be mentioned, however, that during the convulsions, and after they had left him, he complained much of a pain in his belly, which was increased by pressure. It is possible, therefore, that the convulsions in this case might have arisen, either wholly or in part, from some disease in the abdomen. The external swellings in this patient also disappeared during the convulsions.

In other cases, the danger seems very clearly to arise from a disease in the abdomen. A boy seven years old, who had shortly before laboured under scarlet fever, was attacked with dropsy, which, on the eighth day after its appearance, the first of my seeing him, occupied in a slight degree the whole surface of the body. The fever had commenced with vomiting and purging, and these symptoms appeared again, two days before he began to swell. On the eleventh day, he complained much of a pain in his bowels; vomiting and purging attacked him a third time, and he died in the course of the night. His stools were scanty and slimy.

But the most frequent source of danger

is an effusion of water into the chest, most probably into the cellular substance of the lungs. The external swellings are here more considerable, than when other internal parts of the body are attacked by the dropsy. More pain also of the chest both immediately precedes and accompanies this disease, than is experienced in some other species of hydrothorax, and the symptoms of danger come on much more rapidly, than in any of them. On the other hand, patients in this disease will often recover from a state, in which no hopes of amendment could have been entertained, if the origin of the effusion had been different. It seems to me, indeed, that the disposition to the effusion of water into the various cavities of the body, which occurs after scarlet fever, continues only a certain time, at the end of which, if the patient lives to the end of it, the disease may be considered similar to that which would arise, from the forcible injection of water into those cavities of a person, who had no tendency to dropsy. Organic injury may have been induced by the cause of the effusion, and by the presence of the fluid ; the powers of life too may have

been much enfeebled by the whole previous disease; but still the probability of the fluid being here absorbed must be considerably greater, than in other species of dropsy, where the cause of the effusion generally continues undiminished.

I have never felt a fluctuation of fluid in the abdomen of persons, who had shortly before laboured under scarlet fever; so that I believe ascites, at least in any considerable degree, occurs but rarely after that disease.

When the dropsy has continued long, I have seen swellings of the external lymphatic glands, and large brown scabs in various parts of the skin. Sometimes also various parts of the skin are occupied with superficial ulcers.

Having finished what I had to say on the history of this disease, it will naturally be expected, that I should next treat of the method of curing it. But on this subject I have very little to mention, that is well founded in experience.

As this disease does not often in this country prove fatal, even when there is much apparent danger, and as it very commonly

recedes after no long stay, though unopposed by art, our practitioners of medicine sometimes fancy, that they have expelled it by means, which are utterly inadequate to this effect.

If the body be bound, it will be proper to open it; and when respiration has been difficult, I have seen much advantage, for a time at least, from the application of a blister to the chest. When the head has been attacked, I have applied blisters to it likewise; but the disease here is of too great magnitude, and too rapid in its progress, to allow us to suppose, that much benefit can in such a case be derived from them. As I believe the urine to be, for the most part, made in a quantity equal to that which is passed in health, the utility of diuretics may be doubted; but when we consider, that stimulating the kidneys will probably occasion them to transmit more serum, and red matter, of the blood, than they might otherwise do, there will perhaps arise a positive objection to their employment. It may be said, indeed, that a similar objection lies against the use of blisters. I admit it; but their utility in another

respect far outweighs the evil, that may accrue from their stimulating the urinary organs.

Were I allowed to speculate on the nature of a disease, which is very much unknown, I should say, that from the frequent desire to make water, and the pain and tension of the coverings of the abdomen, which sometimes occur in the beginning of the dropsy, it seems to me probable, that in such cases the peritonæum is inflamed; that, if this be admitted, inflammation may be also supposed to exist sometimes in the head and the chest; and, consequently, that bleeding, where danger is urgent, may be employed with advantage. I must add, however, that I have never prescribed bleeding myself in this disease, and that possibly I should not have courage to prescribe it, if a case were to occur to me, in which I might think it proper. Plenciz, indeed, recommends bleeding in affections of the head from this cause; but as he recommends also large bleedings for the cure of the original fever, his authority has not much weight with me. Possibly, the inflammation of the internal membranes, if

it does exist, may be similar to that which occurs in the skin during the original fever. This conjecture derives strength from an observation of Plenciz, that the saliva is sometimes bloody, while the original fever and redness of the skin are present.

But whatever opinion may be formed of what I have just said, it seems very evident, that the dropsy, which occurs after scarlet fever is, in the beginning, a symptom of some state of the body, different from debility. For it often attacks those, who either have never been much weakened, or have recovered their strength, while it passes by others whose strength has been much diminished; it appears constantly in the face, before it invades any other external part of the body, and frequently never extends beyond the face; its commencement is confined within certain times, though great weakness may exist both before and after; and, lastly, in one case, where only a slight swelling of the face existed, not even breathlessness being present, the patient had for many days a white tongue, and a frequent bounding pulse.*

* Since this paper was written, I have found, in

Burserius's Institutes of the practice of medicine, a confirmation of my conjecture respecting the existence of internal inflammation, in those who are seized with dropsy after the scarlet fever. He says, that the bodies of several persons, who had died of this disease at Florence, about the year 1717, having been opened, the lungs, pleura, intercostal muscles, diaphragm, kidneys, and intestines were found more or less inflamed; that perineumony having hence been considered as the primary disease, and the dropsical swelling only as a consequence, blood was taken from the arm in the succeeding cases, once or oftener, as the occasion required; and that no one afterwards died of the dropsy who was thus treated. Burserius refers to a work entitled 'Avvisi sopra la salute umana,' and to a letter of Johannes Calvus in the 'Europæ Medicina' of Roncalli Parolinus, as his authorities. I have seen the letter of Calvus, and find it to be correctly quoted by Burserius; but have not hitherto met with the Italian work. My opinion concerning the nature of this disease being now supported, both by the appearance of the internal parts after death, and by successful practice, I shall not hesitate to prescribe bleeding in it, when symptoms of danger occur early, from an affection of the head, chest, or abdomen:

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Postscript.

Dr. Blane, on reading the foregoing paper, favoured me with the following remark. " It has been my practice for some years to give repeated purges after scarlet fever, with a view to prevent dropsy, following the analogy of the measles; and I do not recollect that dropsy has occurred, where this practice was adopted."

XVI. *An Account of some Changes from Disease in the Composition of human Urine.* By Mr. WILLIAM THOMAS BRANDE, F.R.S. and Lecturer on Chemistry. Read February 3, 1807.

THE urine is a fluid which is constantly liable to alterations in its composition from various causes; but when the body is suffering under certain diseases, the changes in this secretion become so evident, as more particularly to engage our attention.

The analysis of urine in a healthy state is difficult; but under disease, it becomes still more so, as several new substances are often then produced. It is moreover liable to putrefaction, which in some instances takes place very soon after it is voided: from these and other causes, we are unable to make an accurate analysis of animal fluids. We can, however often ascertain some useful facts respecting them.

It is not my intention here, to enter into a minute statement of the methods of analysing urine, but to give an account of some

unusual appearances in the urine of two dropsical patients, which I examined at the request of Dr. Baillie.

The urine first examined was that of a gentleman aged seventy-seven, who had been long subject to a cough, attended with considerable expectoration of mucus. A few weeks previous to the examination of his urine, his skin became of a light yellow colour: some swelling of his ancles was at the same time observed, and he voided a very small quantity of urine.

The urine appeared of a yellowish-green colour, was very turbid, and seemed to be nearly as viscid as barley water. These appearances excited a curiosity to enquire into its chemical properties. On examining it by various tests, the following results were obtained.

1. It restored the blue colour to litmus paper reddened with vinegar.

2. It afforded a copious precipitate of muriate of silver, on the addition of the nitrate of that metal.

3. Ammonia did not throw down any phosphate of lime.

4. But with oxalate of ammonia, a very slight cloud was produced.

5. Solution of tannin gave an abundant insoluble precipitate.

6. Sulphuric acid occasioned the separation of a flaky matter, which was found to possess the properties of coagulated albumen; the precipitate, therefore, formed by the tannin was occasioned principally by albumen, and not by gelatine.

The usual method of obtaining urea was had recourse to, but only a very small quantity of that substance was obtained.

When the urine had stood undisturbed for some hours, a copious sediment was deposited, which was collected on a filter and dried. It had all the appearance of the usual lateritious sediment, consisting of uric acid and animal matter; but on examination with nitric acid, the rose coloured matter, which is so invariable a characteristic of uric acid, was not produced. The mixture uniformly assumed a dirty red colour, so that it would appear to have been the substance described by Proust under the title of *rosaic acid*: it was also more soluble than

uric acid, and composed nearly the whole of the sediment.

It would scarcely be necessary to enumerate the remaining tests, to which the urine was subjected. From what has been said, it appears, that the chief peculiarities of this urine consisted in the abundance of albumen, the deficiency of urea, and the presence of the rosanic acid of Proust.

If healthy urine be examined, it is found to contain no sensible portion of albumen; but the quantity of urea is much greater than in the above instance; it is said to compose $\frac{12}{20}$ of the solid matter obtained by evaporating healthy urine.

The urine next examined was that of a gentleman, aged about sixty-five, who had laboured for some months under symptoms of a diseased liver, which were at last accompanied with ascites. His urine was voided in very small quantity; it was somewhat turbid, and in colour resembled water in which flesh had been washed.

It is unnecessary to repeat the steps taken to ascertain its composition; I shall therefore only observe, that it differed from the

urine in the former case, in the following particulars.

1. It contained a much larger portion of urea.
2. It reddened litmus paper.
3. It afforded no signs of albumen, although it gave a copious precipitate with tannin. This effect, therefore, must have been produced by gelatine.
4. It deposited scarcely any uric, or rosaiic acid.

From these experiments it appears, that this urine approached nearer to a healthy state than the former, for it contained an excess of phosphoric acid, and yielded abundance of urea. These differences tend to shew, that the urine secreted in dropsical diseases is by no means uniform in its composition, and that serous matter is not always present in it.

I shall not now enlarge on this subject, but it may be proper to subjoin the following case.

A labouring man was afflicted with symptoms of calculus in the bladder. He was

sounded in the month of June last, and a stone was distinctly felt.

He voided his urine frequently, but in very small quantity, and it uniformly deposited more or less of a white powdery sediment.

This I examined, and found to consist of uric acid.

Having been advised to use alkalies, he took large quantities of the aqua kali puri, and aerated soda water. By the use of these remedies, the sediment in his urine almost entirely disappeared. He died, at the end of the following August, of a different disease.

On examination after death, a stone weighing three drachms was found in his bladder. The whole of this calculus, except the nucleus, was composed of the triple phosphate of magnesia and ammonia, together with animal matter. The nucleus, which was very small, consisted of uric acid.

Here, then, one species of calculus was contained in the bladder, and another voided with the urine. On the former the alkali could have had no effect whatever, although it apparently acted upon the uric acid.

monia, or, at least prevented its farther formation.

The case of this patient shews too the impossibility of accurately ascertaining the composition of a calculus in the bladder, by the urine, or even by the gravel, as it is termed, which is voided. The proper solvents for calculi, consisting of the above mentioned triple salt, are acids ; but the use of them was manifestly contra-indicated by the nature of the sediment.

XVII. *On the presence of the red Matter and Serum of Blood in the Urine of Dropsy, which has not originated from Scarlet Fever.* By WILLIAM CHARLES WELLS, M.D. &c. Read June 4, 1811.

IN the paper which I presented to this Society, several years ago, on the dropsy after scarlet fever, I mentioned, that the urine in that disease contains almost always the serous, and sometimes the red, matter of blood. I shall now communicate several observations, which I have made upon similar states of urine in dropsy arising from other causes.

I have hitherto seen only one case of dropsy, not occurring after scarlet fever, in which the red matter of blood was found in considerable quantity in the urine. On this account, and as the case was in other respects remarkable, I shall relate it at some length.

Mr. E. a master lighterman, of a dark complexion, thin, tall, active, and very

healthy, in the spring of 1796, being then in his thirty-ninth year, received a blow upon his chest, which caused him to spit a little blood. He confined himself, in consequence, only a few days to his house; but he never afterwards appeared to his family to have completely recovered his health. In the summer of the following year it was observed, that his ancles were sometimes a little swelled in the evening. He continued, however, without any increase of this symptom of disease, or the accession of any new one, till the beginning of February, 1798, when, after suffering much from anxiety of mind, fatigue of body, and exposure to bad weather, he was seized with a pain in his loins, which was soon followed by a scanty secretion of urine. On the 13th of the same month, he began to be affected with a general swelling of the skin from dropsy. Two days after, I visited him for the first time. The external swelling was then not great, and no fluctuation or hardness could be felt in the abdomen. He had some uneasiness in the region of the left kidney, but no acute pain; his urine was high coloured, and his

pulse about sixty in the minute. His chief complaints were of flatulence, sickness at the stomach, which, though incessant, never occasioned him to vomit, and the rising of what he called a putrid fume into his mouth, which smelt, he said, like stale urine. In this state he continued about ten days, at the end of which time his urine assumed an uncommon appearance; for when seen by reflected light it had the look of a strong infusion of coffee, but when viewed, in a small mass, by transmitted light, its colour was a reddish brown. It was slightly turbid when made; but after standing some hours it deposited a brown sediment, in height not exceeding the fortieth part of that of the fluid, and became transparent. As it resembled now very exactly a stale solution of the red matter of blood in water, I exposed some of it to heat, on which it became curdled, and in a short time let fall a considerable quantity of dark brown flocculi, the fluid above being left of a straw colour. His urine continued in this state several weeks; its dark colour then began to diminish, and in a week or two more disappeared. But after it was entirely gone,

there was still formed in the urine, on exposing it to the heat of boiling water, a large quantity of coagulum, which was now white.

In the mean time, the patient experienced great distress from other causes. As his urine when I first saw him was scanty, he was desired to take thrice a day half a grain of the powder of digitalis ; and this quantity was afterwards gradually increased to a whole grain. During the use of this medicine his urine became more abundant than it had been in health. At length he grew tired of it, left it off, and requested me to consult my late learned and experienced colleague, Dr. G. Fordyce, on his case. The day he made this request, his pulse, which I had never before observed to be above seventy in the minute, was frequent, and unusually full ; but as I was told that he had just eaten heartily of fried bacon and eggs, and had drunk a pint of porter, I attributed the change to these circumstances. The next day, however, Dr. Fordyce and myself were informed, when we met in consultation, that his head and limbs had begun to shake

shortly after I had left him; that this symptom recurred repeatedly in the afternoon; that in the evening he was seized with convulsions; and that these had since returned several times. While we were in his room, he was again attacked with convulsions, which were clearly epileptic. At our visit on the following day we learned, that within six hours after we had left him he had experienced six or seven more fits; but that he had suffered none more lately. He was now somewhat stupid, and complained of head-ach, and soreness of his tongue from having bitten it. His pulse was ninety, and his dropsical swellings were much lessened. The day following the swellings were quite gone, and the pulse was only seventy. Dr. Fordyce, who had attributed the attacks of epilepsy to the former use of digitalis, now discontinued his visits. In a week Mr. E. began to swell again in his face, and the upper parts of his body; but the swellings there were slight, and the lower parts of his body were without any. A consultation with Dr. W. Saunders was in consequence desired by him; but before this was held, the fits

returned, and attacked him as frequently, but not so violently, as before. The digitalis had not been again administered to him. By the advice of Dr. Saunders, twelve ounces of blood were taken from his arm, which on cooling, became sizey; a blister was applied to his head, and a few grains of elaterium were given to him. The elaterium operated violently. Two or three days afterwards, leeches were applied to his temples. During this treatment the dropsical swelling diminished; but the patient became weaker; his abdomen swelled, and grew painful to the touch; his pulse increased in frequency to one hundred and twenty in the minute; aphthæ appeared in his fauces; a hiccup came on; in short, his speedy death seemed certain both to Dr. Saunders and myself. Dr. Saunders now left off visiting him. After continuing several days in the state which I have described, his bowels being bound, he took a little rhubarb and soluble tartar; but the operation of this medicine proving greater than was expected, he was rendered so feeble, that it was several times thought by those

about him, that he would expire immediately. What he voided was said to be highly offensive to the smell. From this time, however, he began to be better. His appetite returned; for several days he slept almost continually; his abdomen gradually decreased in size, and became less painful on being pressed; his pulse gradually also became less frequent, and his dropsical swellings entirely disappeared. He was now attacked with what I regarded as gout in his right leg and foot, a disease which he had never before experienced. This new ailment lasted only a few days; and his recovery, advancing afterwards slowly but steadily, was seemingly complete at the end of the third month after the first appearance of his dropsy, except that his strength had not yet altogether returned; I say seemingly, because his urine still contained serum. From that time to the present, though he has followed a laborious business, he has never been affected with any sensible bodily ailment besides catarrh, and slight pains in his limbs. About four years ago, nine years after he had been dropsical, he sent

me some of his urine. It was transparent and straw-coloured, and in every other respect looked like healthy urine; but being boiled it became turbid, and afterwards deposited a considerable quantity of curdy matter.

The other cases of dropsy, unconnected with scarlet fever, in which I have found the urine to contain the red matter of blood, are only two. The subject of one was an old sailor, who had returned from the West Indies in good health, about four months before his admission into St. Thomas's Hospital, but who had been attacked, almost immediately on his arrival in this country, with pains in his limbs, and soon after, on the pains becoming less, with dropsy. When I first saw him his urine was pale, and contained much serum. It afterwards became somewhat red, evidently from holding in solution the red matter of blood. He died, and his body having been opened, the mucous membrane of the neck of the bladder was found a little inflamed, and two hydatids, of the size of horse-beans, were discovered in the substance of the right kidney. Another

hydatid, of a like size, was attached to the outer surface of the same kidney. The liver was larger than it commonly is, and its surface was hard and irregular. The second instance occurred in a man nearly seventy years of age. His urine was brown; and, when it was exposed to the heat of boiling water, a brown coagulum formed in it, which, falling to the bottom, left the fluid above paler than the unboiled urine, proving, I think, that the brownness had been owing to some modification of red blood.

The discovery, however, of serum in Mr. E.'s urine, did not lead me to suppose, that the same substance might exist in the urine of other persons labouring under dropsy. But my attention was turned to this point in the beginning of the following year, 1799, by my detecting serum in the urine of persons affected with dropsy after scarlet fever. In the mean time, Mr. Cruikshank mentioned, in his observations upon urine, which appeared at the end of 1798, in the second edition of Dr. Rollo's Treatise on Diabetes, that the urine in dropsy often contains serum. As far as I know, no author had before

stated this fact, and in all probability Mr. Cruikshank was the first person who took notice of it. His observations, however, had been published several years before I saw them, and as I had in the course of that time made frequent experiments on the urine in dropsy, I found, upon reading what he had written, that he had not exhausted the subject, and had perhaps committed several errors in respect to it. I therefore continued my experiments, and will now communicate the results of them, after saying a few words upon the manner, in which they were made.

The heat of boiling water, and the nitrous acid, were the means which I chiefly employed for the purpose of ascertaining, whether urine contained serum. For reasons which I do not comprehend, very small portions of serum in urine will sometimes be detected by one of these tests, and not by the other. Heat, however, more frequently shews its presence than the acid, on which account, and as it adds nothing to the bulk of the fluid which is the subject of experiment, and seldom occasions any alteration in its colour,

I formerly often employed it singly. But having found of late, that the external appearance of urine, containing even a considerable quantity of serum, will now and then be little changed by heat, I have since always used both tests.

The fact, which has just been mentioned, depends partly upon a deficiency of salts in the urine, and partly upon circumstances unknown to me. When nitrous acid is added to a mixture of serum and water, a precipitation takes place of a white incoherent matter. If a similar mixture of serum and water be exposed to heat, it becomes somewhat opake, and opaline, reflecting chiefly the more refrangible, and transmitting chiefly the less refrangible rays of light. This effect occurs in a greater or less degree, according to the greater or less quantity of serum in the heated fluid; but no precipitation ensues. If any of the neutral salts, however, be added to such a mixture of serum and water, so as to render it somewhat more saline than urine, a precipitation is occasioned by heat, similar to that produced by nitrous acid. Again, if serum

be added to urine, the mixture, on being heated, very commonly throws down a curdy matter. This no doubt depends in great measure upon the salts of the urine, but not altogether; for I have several times seen, when equal quantities of the same serum have been added to equal quantities of urine, made by the same person at different times, but not differing, as far as could be ascertained by the taste, in their quantities of saline matter, that upon heating both mixtures, the serum in one has formed a large precipitate, while in the other it has only occasioned a slight opacity. If urine has much serum, and contains also the ordinary quantity of salts, a precipitate of curdy matter will, I believe, be certainly produced in it by heat.

Having spoken of my instruments, I shall now proceed to the direct consideration of my subject.

I have examined by means of one, or other, or both, of the tests which have been mentioned, the urine of one hundred and thirty persons, affected with dropsy from other causes than scarlet fever, of whom ninety-five were males, and thirty-five females; and have

found serum in that of seventy-eight, sixty of whom were males and eighteen females.*

In about a third of the cases in which serum was detected in the urine, its quantity was small, the bulk of the coagulum produced by heat and nitrous acid, after remaining undisturbed twenty-four hours, being only from one-tenth to one-fortieth of that of the urine, which contained it. On the other hand, the urine, after being exposed to the heat of boiling water, in five cases became firmly solid, and in seven became a soft solid, which separated, from the sides of the glass vial in which it had been formed, when the bottom of the vial was placed uppermost. In one of these cases the urine became solid at every trial during six weeks; in the other eleven, it was sometimes rendered only considerably turbid. In the remaining cases with serous urine, amounting to about a half of the whole number, all the distinguishable interme-

* No conclusion is to be drawn from these numbers, in regard to the comparative frequency of dropsy in the different sexes; for the whole number of male patients admitted into St. Thomas Hospital, where by far the greater part of the cases were seen by me, is much greater than that of the female.

diate quantities of coagulated matter were formed in that fluid by heat and nitrous acid.

Urine in dropsy, when it contains serum, is often more abundant than in health. It is sometimes discharged, though not for any long time, in the quantity of six pints daily; in one person the daily quantity was for a short time ten pints. It must be mentioned, however, that a great part of my information upon this subject has been derived from the reports of the patients themselves, and their nurses in St. Thomas Hospital.

Urine containing a considerable quantity of serum is sometimes not distinguishable, by its appearance, from that which is healthy. Sometimes, however, it is very pale, and though abundant, and without sediment, slightly opake when cold, having a resemblance to whey, or to water with which a little milk has been mixed. When it is scanty, and gives a sediment upon cooling, this is almost always white, cream coloured, or grey. Now and then the sediment looks like powdered chalk, or like very light curds of milk.*

* This appearance in the urine is the same as that I mentioned in my paper on the dropsy after scarlet

When there is a sediment, the fluid above, though it has remained long unshaken, is commonly a little opake. I never, but in two instances, saw a pink-coloured sediment in urine, which contained the least quantity of serum.

I have always found urine holding serum to possess the saline and bitter taste of that which is healthy, though sometimes in a less degree, than even its copiousness would account for. It is also sometimes paler than healthy urine, after allowance has been made for its quantity. I once observed dropsical urine to become sour, after serum had been separated from it by heat; but a few days after, the urine of the same person grew putrid in similar circumstances.

The daily quantity of serum discharged with the urine seldom undergoes suddenly any considerable change. A few instances of such a change, which I once thought I had seen, were probably cases of that state of urine, which prevents serum mixed with it from being curdled by heat. But though

fever, and which I said I had to that time never seen in any other disease.

the whole daily quantity be the same, a given measure of the urine will contain less or more of serum, according to the greater or less copiousness of the watery fluid, with which it is mixed.

The appetite of persons in this species of dropsy is often as great, as it had been in health; sometimes it is greater.

If the urine contains much serum, the skin is very pale; but the countenance, I think, is never so extenuated, as it is in the ordinary instances of ascites.

The external swellings are more apt to shift their places, than in dropsy where the urine is free from serum.

When the quantity of serum in the urine is great, the pulse is often large and frequent, even after the disease has continued long. Considerable pains, and a sense of weakness in the loins, frequently accompany this species of dropsy. I have sometimes attributed such symptoms to an affection of the kidneys, but perhaps improperly, as patients in this disease have, as frequently, severe pains in their limbs, particularly the lower.

A diarrhoea is often present. Morbid

discharges of red blood from various parts of the body more frequently occur, than in the dropsy which is not accompanied with urine containing serum. Of eighteen cases of dropsy, in which such discharges took place, the urine contained serum in fourteen.

I exposed to the heat of boiling water the saliva of one dropsical patient, whose urine had much serum, and observed that it became more turbid, than the saliva of a healthy person similarly treated; but the difference was too small to permit any conclusion being formed from it, more especially as the experiment was not repeated.

For the most part, as the dropsical swellings increase or diminish, the daily quantity of serum emitted with the urine becomes greater or less. Sometimes it disappears altogether with the external disease; but the contrary, I believe, is more commonly the case. In one instance it was as great, after the disappearance of the swellings, as it had been while they were present. It sometimes also becomes less, shortly before death, like the saccharine matter in diabetic urine.

It might be inferred from what Mr. Cruick-

shank has said, that dropsy with serous urine is more quickly fatal, than that which is without it. But I have myself never seen death occur in the former disease, in less than several months from its commencement, except it had followed scarlet fever. A Jew lad was an out-patient of St. Thomas's Hospital frequently in the course of three years, during all which time he was dropsical. He was then received into the Hospital, and upon examining his urine I found it to contain serum. As all the other circumstances were similar, I think it probable, that there had been serum in his urine, during the whole course of his illness.

Such are the general observations which I have made upon urine containing serum of blood in dropsy. I shall next speak of its presence and absence in the three principal forms of that disease, dropsy of the skin, hydrothorax, and ascites, and shall venture to mix some conjectures with the facts I relate.

Among twenty-nine cases of dropsy of the skin, not preceded by any disease to which dropsy is generally attributed, were twenty-three with urine containing serum.

The proportion of these cases, therefore, to the six without serum in the urine, being nearly as four are to one, is very much higher, than that of the whole number of instances of dropsy with serous urine to the whole number free from it, this being only as seventy-eight are to fifty-two, or as three to two. The proportion of considerable cases in this class, is also very great; for out of five instances of the urine being made firmly solid by heat, and of seven of being its made a soft solid by like means, which occurred among one hundred and thirty cases, two of the former, and four of the latter, were found in the twenty-nine cases, which form the subject of the present article. Of the remaining seventeen cases with urine containing serum, the quantity of serum was in nine considerable, though less than in those of the two preceding divisions; the urine of three had a still less quantity, and that of five but a small one.

On the other hand, of nine cases of dropsy of the skin, apparently arising from weakness, the urine in seven was altogether without serum. Two of the latter occurred

in old dysentery, one in chlorosis, one in chronic rheumatism, two after agues, and one after profuse bleeding, which had been employed to remove a great inflammation in the chest. In the eighth case, which took place after ague, and in the ninth, which occurred in chlorosis of very long standing, there was a small quantity of serum in the urine.

The presence, therefore, of serum in dropsical urine seems to be independant of weakness. It would appear, on the contrary, from the full and frequent pulse which frequently accompanies it, to be connected with too great action in some part of the system. This is rendered further probable, by the patients often suffering great pains in the loins and limbs, both before and after the appearance of the dropsy, as was formerly remarked. An argument, indeed, may be brought against this opinion from the fact, that there was no serum in the urine in six of the cases, which had not been preceded by any other disease. But not to mention that weakness may arise without any previous *apparent* disease, those who are acquainted with hospitals will readily acknow-

ledge, that it is often very difficult, and sometimes impossible, to obtain a tolerably accurate account of what has happened to patients, before their admission.

In one case of dropsy of the skin, which followed quickly the application of cold to the body, and was attended with catarrh, and in another, in which the liver was evidently diseased, though there was no perceptible fluid in the abdomen, the urine contained no serum.

The most common cause of dropsy of the skin in this country, or rather perhaps, the circumstance which most commonly precedes it, is a disease of the chest, manifested by cough and difficulty of breathing. I examined the urine in thirty-seven cases of this kind, to discover if it contained serum, and found it in twenty-four. In three of these the urine became a soft solid, upon being heated; in two, the quantity of serum was great, but less so than in the preceding three; in five, the quantity was still less; and in fourteen, it was very small. In the whole twenty-four there was probably extravasated fluid in the chest; but I have

placed them under the title of dropsy of the skin, as there was commonly no symptom of considerable disease of the chest. I shall delay making any farther observations on the urine in these cases, until I have spoken of hydrothorax.

Of twenty cases of hydrothorax, all of them attended with dropsy of the skin, the urine was found in fourteen to contain serum, which, however, was in considerable quantity only in one case, and in this the urine was not made solid by heat. In one of the six cases without serum in the urine, there were manifest symptoms of a disease of the heart, or the great blood vessels in its immediate neighbourhood; but in the urine of three other patients having similar symptoms, there was a small quantity of serum. Five of the twenty cases were accompanied with ascites, but as the hydrothorax appeared to be the principal disease, I have classed them under it. In two of the instances of this combination there was no serum in the urine; in three there was a little.

From a review of these cases of hydro-

thorax, and of those of dropsy of the skin after a disease of the chest, it appears, that in proportion as they were unlike the cases of dropsy of the skin without any known cause, the probability was less of finding any considerable quantity of serum in the urine; or in other words, the greatness of the disease of the chest always lessened the probability of any great quantity of serum being found in the urine. Thus, of thirty-seven cases of dropsy of the skin after a disease of the chest, only five had much serum in the urine, and only one of hydrothorax out of twenty; whereas among twenty-nine cases of dropsy of the skin, without any ascertained cause, there were fifteen instances of the urine holding a considerable quantity of serum. It seems to me, therefore, that effusion of water into the chest, or under the skin after a disease of the chest, constitutes, for the most part, a very different disease, from that which is occasioned by the effusion of water under the skin, when the effusion has not been preceded by any other disorder of consequence. There is, indeed, an appearance here of a want of an entire

uniformity in the operations of nature; but this appearance, in all probability, arises from a sufficiently long and accurate attention not having yet been given to the subject.

My success has been greater in arranging accurately the cases of ascites, in which I have made experiments on the urine with the view of learning, whether it held serum or not.

In four cases of that disease in women, which were evidently of the encysted kind, the urine was altogether without serum. Three of them were attended with watery swellings of the limbs.*

* I stated formerly, that urine containing serum occurs more frequently in men, when dropsical, than in women. If these four cases, however, of dropsy from a cause peculiar to the latter, be taken from the whole number of cases of that disease in females, in which I examined the urine, namely 35, the remainder 31 will give 19,74 cases, in which serous urine ought to have occurred in women, according to the proportion, in which it did actually occur in men, from causes common to both sexes. But the number of cases of dropsy in women, in which I found serum in the urine, was only 18. The difference may have been accidental; if it were not, it would shew, that there is a greater tendency to the passing of serum by the kidneys, as well as of saccharine matter, in men than in women.

In fourteen cases of the same disease apparently not encysted, and in the histories of all of which I either have marked, that the swelling of the limbs had followed that of the abdomen, or have taken no notice of an external swelling, there was likewise no serum in the urine.

In seven cases, in other respects similar to the above mentioned fourteen, there was a very little serum in the urine.

But with respect to ascites which is distinctly preceded by dropsy of the skin, the result of my observations has been very different. These have been made in eight cases, in seven of which the swelling of the abdomen had occurred under my own eyes, and in regard to the eighth, I had a history of what had happened, both from the patient himself, and from his physician, that leaves no doubt concerning it. In three of these cases the urine was made entirely solid by heat. In two others the quantity of serum in it was considerable, but still not sufficient to occasion an entire coagulation when heat was applied. In the remaining three the quantity was somewhat less considerable. It

appears, therefore, that ascites, following dropsy of the skin, differs greatly from ascites, which either precedes dropsy of the skin, or is not accompanied by it.

I have never hitherto obtained permission to examine, after death, the body of any dropsical person, whose urine had been made solid, or nearly solid, by heat. I have described, however, in the first part of this paper, the appearances which were observed, on opening the body of an old sailor, who had died dropsical after passing urine, in which there was a considerable quantity of serum; and I shall now mention what was seen in the body of another person, a soldier, forty-seven years old, who had likewise died dropsical, and in whose urine a considerable quantity of serum had been present. He had also, shortly before his death, laboured under an inflammatory affection of his chest.

The inferior lobe of the right lung was greatly inflamed, and its air cells were much compressed by effused coagulable lymph, mixed with some blood. The upper part of the diaphragm was also much inflamed. There was about a pint of

watery fluid in the cavity of the chest. The kidneys were much harder than they usually are. Their cortical part was thickened and changed in its structure, from the deposition of coagulable lymph, and there was a small quantity of pus in the pelvis of one of them. I do not conclude, however, from these appearances, and those which were found in the former case, that the kidneys are always diseased, when the urine in dropsy contains much serum. The morbid appearances in the kidneys might be altogether unconnected with the morbid secretion, and if they were not, a diseased action of the secreting vessels, which was in those cases induced by an organic disease of the glands, may probably arise from various other causes.*

I had long made experiments upon urine

* Soon after this paper was read to the Society, an elderly man died in St. Thomas's Hospital, who had become ascitical, after labouring some time under a disease in his chest, and dropsy of the skin, and whose urine had contained a considerable quantity of serum. On opening his body, all the parts, which are naturally red, were found to be much paler than such parts usually are. The kidneys were larger and softer than if in a healthy state, and on the outside of both were several vesicles, partly embedded in their cortical substance, and containing an amber-coloured fluid. The

in dropsy, before I attempted to ascertain the quantities of serum, which were indicated by the appearances I had observed; when I did make them, I found that those appearances were occasioned by much less quantities than I had supposed.

greatest of them was of the size of a hazel nut. Both ureters were enlarged at their commencement. The liver was large and indurated; the colour of its surface and of that of the spleen was blue. The lungs adhered very generally to the ribs, and when they were cut, a fluid oozed from them which seemed to contain pus. The quantity of water under the skin was much less than it had been several weeks before his death. There were about fifteen pints of water in the abdomen, about one pint in the chest, about half an ounce in the ventricles of the brain, and a little between the pia mater and tunica arachnoides. Samples of all these fluids, except the last, which was lost, were exposed to heat, and the coagulum formed by it in the three first was very great; but I possessed no means of judging, whether it was greater than that produced by a similar treatment of water, taken from the same parts of dropsical persons, whose urine had been without serum. The water from the ventricles of the brain gave a coagulum, which, after being at rest twenty-four hours, was equal in bulk to a third of the original fluid. Whytt says, that no coagulum is produced by heat in the water contained in the ventricles of the brain in children, who have died of hydrocephalus; but Dr. Baillie found, that the water in the ventricles of the brain, in the hydrocephalus of children, sometimes contains a considerable quantity of coagulable matter.

A mixture of equal parts of serum and distilled water will almost always form a firm coagulum, on the application of a proper degree of heat. The same effect will commonly follow, if the water be to the serum in the proportion of one and a half to one, and sometimes, though rarely, if the proportion be as two are to one. If water be added to serum in any higher proportion, heat will not occasion the mixture to become solid. But if straw-coloured urine of a healthy person be used in such experiments, instead of water, the results are very different; for a mixture of one part of serum and four parts of such urine will, for the most part, coagulate firmly when heated. This fact was probably unknown to Mr. Cruikshank, when he said, that in one case he had met with, the urine appeared to differ but little from the serum of blood, so remarkable was the coagulation by heat and acids. This superior tendency to become solid by heat, in a mixture of serum and urine, to that possessed by a mixture of serum and water, appears to be principally derived from the salts of the urine, for the addition of a neutral salt to

water will give it a power to assist the coagulation of serum equal to that of urine.

When, therefore, the urine of a dropsical person is barely formed into a solid mass by heat, I conclude that serum constitutes about a fifth part of it; but I am acquainted with no easy means, the least precise, of ascertaining the quantity of serum, when it exceeds a fifth of the whole fluid secreted by the kidneys. This, however, I believe seldom happens; for in four of the five cases in which the urine was rendered solid by heat, not only was the degree of firmness in the coagulum not greater, than that possessed by the coagulum of one part of serum and four of urine, mixed intentionally, but the urine of the diseased persons, as formerly was observed, never possessed this property long without interruption, and may consequently be supposed never to have contained a greater quantity of serum, than what was barely sufficient to produce a coagulation of the whole mass. In the fifth case, that in which the urine became solid at every trial during six weeks, the coagulum was somewhat harder than in the others, and may therefore

be regarded, as having arisen from the mixture of one part of serum with three of urine.

In estimating the less quantities of serum in dropsical urine, I proceeded in the following manner. I coagulated by heat the serum in the urine of a dropsical person, where it existed in less quantity than was sufficient to render the heated fluid solid, and having separated the coagulum by filtration, I added to equal quantities of the clear liquor, and of straw-coloured urine of a healthy person, equal quantities of the same serum, and exposed both the mixtures to heat at the same time, in vials of the same size and shape. When coagulation was produced, I allowed the vials to remain undisturbed during twenty-four hours, at the end of which time I found the coagula in the two vials to occupy equal, or nearly equal, spaces. I now took for granted, that experiments, made with healthy urine and serum, would afford grounds, tolerably accurate, for estimating the quantity of serum in the urine of any dropsical patient; I say tolerably accurate, for the different tendencies

in the serum of different persons to coagulate, and the different degrees in which the urine of different persons, from its greater or less quantity of salts, and perhaps from other circumstances, assist the coagulation, took away all hope of obtaining a perfect measure.

Proceeding in this way, I found, that when serum exists in urine, in the proportion of 1 to 640,* and an ounce of the mixture is heated in a common two-ounce glass vial, a coagulum is formed resembling a fine powder, which, if equally spread over the bottom of the vial, will barely conceal it from the sight; that when the mixture contains 1-320th of serum, a coagulum ensues equal in bulk to about 1-20th of it; that when it contains

1-160th	the coagulum is about	1-8th;
1-80th	-	1-5th;
1-40th	-	2-5ths;
1-30th	-	1-half;
1-25th	-	3-5ths;
1-20th	-	3-4ths;

* Eighty drops of serum, from an ounce vial half filled, will ordinarily make a drachm by measure. A single drop, therefore, is the 640th of an ounce.

1-15th	-	-	4-5ths ;
1-10th	-	-	7-8ths.

In the last instance, the mixture commonly shews a disposition to form large masses of a very soft jelly, instead of small incoherent flakes or shreds of coagulum, which are observed when the proportion of serum is less. When the serum is 1-8th of the mixture, the whole is converted into a semi-fluid jelly. If it constitutes 1-7th, the jelly is firmer, and begins to adhere to the vial ; if 1-6th, there is a still firmer jelly, great part of which adheres to the vial ; and if 1-5th, the whole mixture, as has been already observed, becomes, for the most part, one solid mass, which adheres to the vial in every position of it. The spaces occupied by the precipitates were noted, after the vials had been at rest twenty-four hours, as that time is frequently required for their complete subsidence. It will be seen, that these spaces are very frequently in a less proportion to each other, than that of the quantities of serum which gave rise to them. This I suppose to proceed from the greater compression of the lower strata of the coagulum, when it is

considerable, by its upper strata, than occurs when the coagulum is smaller.

But though the quantity of serum in drop-sical urine is much less, than I once supposed it to be, it is still often sufficiently great to produce important effects. I was not assiduous enough in marking the quantities of urine which were passed during the days, on which I made my experiments. From the notes, however, which I did take of this circumstance, I conclude, that one patient passed four ounces of serum daily, another five, and a third seven.

In order to know how far the presence of serum in urine is to be regarded as appropriate to dropsy, I examined the urine of several persons, apparently in health, but did not find serum in that of any of them, except Mr. E. whose case is given in the beginning of this paper. Twelve of these persons were children in the Military Asylum at Chelsea, six boys, and six girls, whose ages were between six and thirteen years. The opportunity of examining their urine was obtained from Mr. Macgregor, the Surgeon of that Institution. In pursuit of the same object,

I applied the tests of heat and nitrous acid to the urine of a hundred and four sick persons, free from dropsy, and also to that of ten affected, or supposed to be affected, with the venereal disease, whose cases I shall consider apart. The diseases of nineteen were acute. In fourteen of these the urine was altogether without serum; in four it had a very small quantity, and in one it contained about 1-160th, or as much as occasioned a coagulum, on the application of heat, equal to an eighth of the mixture. The disease of this person was a fever of the kind called synochus by Dr. Cullen. In fifty-four of the chronic cases, the urine had no serum; in that of twenty-five there was a very little. In one, where there was a discharge of pus by the urethra, which apparently proceeded from the kidneys, the urine, upon being heated, gave a coagulum, which formed a fourth of the mixture. But, as at another trial with this person's urine, when the quantity of pus was much less than at the former, the quantity of coagulum produced by heat was also less, I conclude, that the whole of the serum, which the urine contained at

both trials, was derived from the purulent matter. In the remaining four cases, the spaces occupied by the coagulated serum were from one-tenth to one-half of those, originally occupied by the urine. One of these patients had a diseased liver; the three others had chronic rheumatism, and all of them had been using mercury largely, for the cure of their ailments.

Having found serum in the urine of three out of four patients, who were in a salivation excited by mercury, for the cure of the venereal disease, I thought it unlikely, that its presence was either accidental in all of them, or occasioned by that disorder, and therefore supposed, that it might arise from the remedy which they were employing. I examined, in consequence, the urine of six patients in the venereal wards of St. Thomas's Hospital, before they began to use mercury, and found that it contained no serum in five, and not more in the sixth than the smallest quantity that can be detected by heat, or the nitrous acid. After they had been in a salivation upwards of a fortnight, I examined their urine a second time, and then found, that the

quantity of serum was so far increased in that, which formerly contained a very little, as to give a coagulum equal in bulk to one-fifth of the mixture; that there was a little serum in the urine of two others; that there was as much of it in the urine of another, as to form a coagulum, the height of which was two-thirds of that of the whole mixture; and that in the urine of the remaining two there was no serum. My suspicion, therefore, that the introduction of large quantities of mercury into the human body has a tendency to render the urine serous, was now confirmed; and it hence appeared to me very likely, that the serum, which I had observed in the urine, in four of the cases of chronic diseases, of which I have lately spoken, had been occasioned by the mercury which had been employed in them. I may mention also here, that three patients in dropsy, whose urine held a very large quantity of serum, had used mercury to a considerable extent, not long before they began to swell. One of these, however, had also taken arsenic, which, it is said, sometimes produces dropsy in those, who are cured by it of intermittent

fevers ; and it must be added, that there was no serum in the urine of a fourth person, who became dropsical shortly after he had used a large quantity of mercury.

It appears, therefore, from what has been said upon this part of my subject, that urine containing a considerable quantity of serum must occur very rarely, if at all, in any disease in this country, except dropsy, and that induced by mercury. Possibly, however, some of the slighter instances of serous urine, which occur in dropsy, are independent of it; those for instance, which are met with in the species of ascites that is without, or precedes, dropsy of the skin. If this were admitted, a part of the seeming irregularity, with respect to the presence of serum in the urine in dropy, would be removed.

In the attempt to cure dropsy, when serum was present in the urine, I gave for some time peruvian bark, and steel conjoined with myrrh, if the urine was abundant, but, as far as I could see, without advantage. When the urine was scanty, I employed crystals of tartar, squills, and digitalis ; but these medicines seemed to be less useful here, than in

those cases of dropsy, in which the urine contains no serum. I afterwards thought, that, as the presence of serum in the urine must arise from some diseased action of the kidneys, if a new action were excited in them, the former might be overpowered, and their healthy state at length restored. With this view I gave cantharides* in large doses, for a considerable time, in five cases of dropsy attended with serous urine, and will now relate the results. Hitherto I had never seen cantharides employed in dropsy, though it is commonly enumerated by authors among the remedies for that disease.

CASE I.

Richard Lawrence, a porter, aged thirty-three years, was received into St. Thomas's Hospital, after he had laboured under a cough two years, and dropsy of the skin six months. His skin was pale, his breathing a

* When I wrote my paper on dropsy after scarlet fever, I supposed, that cantharides would, by stimulating the kidneys, increase the quantity of serum, and red matter of blood, one or both of which the urine in that disease commonly contains.

little difficult, and his body very loose; but his appetite for food was great, and his urine as copious as in health. He often felt cold, and trembled. His pulse was frequent and large, but his tongue was clean. He used various medicines in the Hospital for nearly seven weeks, without experiencing any diminution of his disease: in consequence of which, and my having in the meantime ascertained, that his urine held much serum, I desired that he should take forty drops of tincture of cantharides, three times a day, and that the dose of it should be gradually increased, till he felt pain in his urinary passages. This effect occurred, in a slight degree, when the dose amounted to sixty drops, beyond which it was therefore not augmented. During the use of the cantharides, his urine, which had become rather scanty in the Hospital, was passed abundantly, and was gradually nearly freed from serum; his swellings also diminished considerably. At length, after he had taken that medicine thirty-three days, he thought himself well enough to return to his labour, and was at his own desire made an out-patient. I saw him seven months after

this. He had then no swellings in his limbs, but had a slight one in his face. He was following his business as a porter, and, according to his own account, both ate more food, and made more urine, than he used to do when in entire health. The urine was of a very pale straw colour, and being heated gave a coagulum equal to its fourth part. This was a greater quantity of coagulum, than what his urine gave when he left the Hospital, but not nearly so great as that which was formed in it by heat, when he became a patient there.

CASE II.

Henry Norton, fifty years of age, a waterman, addicted to the use of strong liquors, was received into St. Thomas's Hospital after labouring under dropsy of the skin six weeks. His legs, which shortly before his admission had become inflamed and blistered, now discharged a considerable quantity of a watery fluid. He was pale, breathed with some difficulty, had a cough, and made but little urine. He took in the hospital for three weeks the tinctures of digitalis and squills

conjoined; and during their use passed more urine than formerly, and experienced some diminution in his swellings. As his advancement towards health, however, was very slow, and as his urine upon being exposed to heat had been rendered nearly solid, I prescribed for him the tincture of cantharides, first in doses of fifty drops, thrice a day, then in those of sixty, and again in those of fifty, according as I found he could bear that medicine, without suffering much pain and heat in the urinary passages; for I wished him to have a little. He proceeded in this way eleven weeks, at the end of which his swellings were entirely gone, and his urine contained almost no serum. The skin of his legs and thighs was still, however, hard, a circumstance I could not well account for, and there were still some superficial ulcers in his legs, in the parts from which the dropsical fluid used to ooze.

CASE III.

George Groves, an American sailor, aged thirty-seven years, tall, feeble, and pale, had been affected six months with dropsy of the

skin, which attacked him about six weeks after he had undergone a long course of mercury. He had a slight cough, and breathed a little shortly. His appetite for food was good, his bowels were open, but his urine was less than in health. His pulse was large and rather frequent. Being received into St. Thomas's Hospital, he was first desired to take half an ounce of crystals of tartar twice a day. Under this treatment his urine was made more copiously, and his swelling became a little less. Some of his urine, being now exposed to heat, furnished a coagulum equal in bulk to its third. The tartar, however, was discontinued after it had been used ten days, as it had purged him very much, and had reduced his strength. Sixty drops of the tincture of cantharides were then given to him thrice a day, and as he suffered no inconvenience from it, the dose was slowly increased to double that quantity; afterwards it was lessened to a hundred drops, as he complained of the effects of the largest dose. He took the cantharides seven weeks, during which time the swellings gradually went away, and his strength in great measure

returned. His urine, while he used that medicine, was for the most part very abundant, and often very pale; but the quantity of serum in it never became less. He left the Hospital of his own accord, with the intention of going again to sea.

In these cases the tincture of cantharides seemed to me highly useful. In the two following, it was given without any apparent benefit accruing from it.

CASE IV.

Mary Whitworth, twenty-seven years old, married, but never pregnant, had been molested with a cough, and a pain in the pit of her stomach, increasing upon pressure, two months, and three weeks with dropsical swellings of her skin. Her abdomen seemed large, but I could feel no fluctuation in it. Her skin was remarkably pale; her body loose, her urine scanty; her pulse a little frequent. The menstrual discharge was natural. During the first ten days of her being in St. Thomas's Hospital, she took a combination of squills, and digitalis, and her urine became more copious; but her swell-

lings having, notwithstanding, increased, and her urine being found to have a very great proportion of serum, I prescribed for her the tincture of cantharides in as large a quantity as she could bear, which, after several trials, was found to be sixty drops given three times a day. For a while, during the use of this medicine, her appetite for food was greater than in health; but she derived no benefit from it in respect to her swellings, though she took it six weeks. During that time her urine was for the most part made in small quantity, and became completely solid as often as I heated it. When she discontinued the cantharides, the presence of fluid in her abdomen was evident. I returned now to the use of digitalis and squills, and afterwards gave her elaterium; but she grew worse, and died in the Hospital, after having been there nearly three months.

CASE V.

Thomas Dench, a carman, thirty-two years of age, fond of strong liquors, had for several years been troubled with a cough in the winter, which, in the present year, did

not leave him on the return of warm weather, and had been attacked with dropsy of the skin two months and a half before his admission into St. Thomas's Hospital. Upon the appearance of the dropsy, the cough became less, but his breathing grew difficult. His urine, he said, was passed in the same quantity as in health; his body, without the aid of medicine, was opened three or four times every day; his pulse was frequent, but his tongue clean; his skin resembled in colour that of a chlorotic girl. I examined his urine soon after his admission. It was then rather pale, and when cold had no sediment, but being heated was made very turbid. Several medicines were given to him, from none of which he received any benefit, as far as his swellings were concerned. After remaining in the Hospital three weeks he left it, to try, he said, the effect of country air. He returned to it, seven weeks afterwards, weaker, and a little more swelled. His urine was now brown, and less in quantity, and when heated became entirely solid. Tincture of cantharides was prescribed for him, first in the dose of

fifty drops thrice a day, and afterwards in that of sixty. His urine was for some time passed more abundantly, and the quantity of serum in it diminished; but immediately after he commenced the use of the cantharides, I discovered water in his abdomen. After he had taken that medicine three weeks he died.

It appears, therefore, from the preceding recital, that considerable benefit was derived from the use of cantharides in three cases of dropsy, in which the urine contained serum. This benefit, however, may have arisen in a different manner from what I have conjectured, more especially as in the case of Groves, the quantity of serum in the urine did not become less; and equal advantage might possibly have been produced by various other means. I shall hereafter attempt to render this subject more clear, and to ascertain also the effects of cantharides in dropsy, unattended with serum in the urine.

XVIII. *A Case of Tetanus, with Observations on that Disease.* By WILLIAM CHARLES WELLS, M. D. &c. Read May 5, 1807.

THE occurrence of tetanus during a salivation from the use of mercury is, I believe, very rare; for I do not know that it is mentioned by any author; and, after making some inquiry on this subject, among the Physicians and Surgeons of London, I have heard of only a single instance of it,* in addition to one which I have seen myself. The

* This case occurred to Mr. Macgregor, Surgeon to the Military Asylum at Chelsea, who has been kind enough to give me the following account of it.

In April, 1802, William Shadwick, a gentleman's servant, twenty-five years of age, had a chancre on the prepuce, and a suppurated bubo in his left groin, for which he used mercury in the form of ointment, until his mouth was much affected. On the 3d of May, while in this state, he sat for several hours exposed to a considerable stream of air, the weather being extremely hot. On the morning of the 4th, he had feverish symptoms, with a slight sore-throat, and on the evening of the same day he complained of great stiffness of the under jaw. On the 5th, the jaw became altogether immovable; on the 6th, symptoms of

latter I shall briefly relate, as a matter, however, rather of curiosity than of much utility.

Margaret Norris, aged eighteen years, of a fair and rather pale complexion, but of a stout make, was admitted into St. Thomas's Hospital on the 17th of March, 1803, on account of a discharge of mucus from her vagina, and pains in her limbs. As these symptoms were thought to depend upon lues venerea, she was placed in a ward appropriated to women labouring under that disease, and was there rubbed with an ointment consisting of one part of mercury and two of hog's lard. The quantity of the ointment used at each rubbing was two drachms. On the 13th of April, after the ointment had been employed eleven times, and a considerable discharge of saliva had been excited, she was attacked with symptoms of tetanus. She had been received into the Hospital as a Surgeon's patient; but, from her being seized with this new disease, the care of her was on the 14th transferred to me. As

opisthotonos appeared. He was now removed to St. George's Hospital, where he died two or three days after.

I was absent from the Hospital on that day, she was seen by another of the Physicians, who ordered that she should be placed in a bath of warm water once a day, and should take twenty-five drops of laudanum every sixth hour. I saw her for the first time on the 16th, when I was informed that she had been in the warm bath twice, and that while in it, and for an hour after, she had been able to separate her jaws a little. The means hitherto employed for her relief were those, which had been long used in St. Thomas's Hospital in tetanus, but with so little success, that no person had recovered there from that disease during the preceding twelve or fourteen years. I therefore determined to adopt another mode of treatment, and in consequence desired, that two gallons of cold water should be poured upon her immediately, and that if no injury followed, four gallons of water should be similarly applied every twelve hours after. Being unwilling, however, to trust solely to this remedy, I directed that twenty-five drops of laudanum should be given to her every third hour. The water was poured upon her soon after, and before

she took any more laudanum. The effect was considerable; for her lower jaw was immediately rendered somewhat moveable, and it never again became completely rigid. Shortly after the affusion she fell asleep, and continued so three hours. The cold water was applied twice a day for eight days, and once a day for two days more, during which time the disease gradually became less, so as at length to threaten little or no danger. The affusion was then omitted, in consequence of the aversion which the patient now entertained towards it, and of the length of time which now elapsed, before she regained her natural heat, after it had been employed. She did not, however, entirely recover from the effects of the tetanus till the beginning of June.

This patient had received no wound or bruise shortly before she became affected with tetanus, but had slightly burned one of her fingers the day previous to her coming into the Hospital. The sore which followed healed, she said, rather suddenly, after she had been there a few days. No mercurial ointment was rubbed upon her after the

appearance of the symptoms of tetanus, and the flow of saliva, which had been excited by it, ceased the third day after the commencement of the affusion of cold water.

It will, perhaps, appear to many, as an obvious conclusion from the preceding case, that mercury ought no longer to be regarded as a remedy for tetanus. But so unstable are the grounds, upon which we frequently build our reasonings in medicine, that it is probable others will say, that, although the powers of mercury were insufficient to prevent the occurrence of that disease in my patient, her recovery from it ought, notwithstanding, to be ascribed to them.

I have already mentioned, that tetanus, though treated in the manner, which is said to be frequently successful in warm climates, almost constantly proves fatal in St. Thomas's Hospital. This difference may arise, in part, from a greater proportion of the cases here being in consequence of wounds, than of those which occur in hot countries. But as the whole of it cannot, I think, depend upon this cause, an exception is, perhaps, hence afforded to what seems to me a general rule,

that those diseases, which are not communicable by contagion, are most fatal, where they are most frequent.

From the descriptions of tetanus given by Hillary, of Barbadoes, and Chalmers, of South Carolina, it appears to me, that the spasms of the voluntary muscles in persons labouring under this disease are much greater, and more painful, in those countries than they are here. If then the observation be just, that the disease is more fatal in this than in warm climates, it will, I think, follow, that the spasms of the voluntary muscles are only expressions of some state of the system, which may exist and kill without their intervention. My late learned and most ingenious friend and colleague, Dr. George Fordyce, entertained an opinion of this kind; for he taught, that tetanus had sometimes its seat in the blood-vessels, and was in this case commonly mistaken for fever.

There is a species of tetanus affecting very young children, the trismus nascentium, as it has been called by some authors, which is very frequent in the West Indies, and almost constantly proves fatal. I have never seen

the disease myself, but as I possess some information respecting its prevention, the diffusion of which may perhaps prove useful, I will venture to say a few words upon it.

It occurs most commonly in the second week after birth, and hence has been called the ninth day disease. Shortly before death, the lower jaw, which till now had been strongly pressed against the upper, drops upon the breast, from which circumstance it has obtained, in the British settlements in the West Indies, the name of the jaw-fall.

So many negro children die of this disease in Jamaica, that the Legislative Assembly of that island were induced, about twenty years ago, to examine several practitioners of medicine concerning it. Two of them asserted, that it destroyed a fourth of the infant negroes in the districts of the island, with which they were acquainted; and one of these added, that it occurs in high and healthy situations, as well as in those which are low, and in inland districts, as well as those near the sea.

A lady of my acquaintance, a woman of vigorous and cultivated understanding, upon

her husband's becoming possessed of a coffee plantation in Jamaica, thought it her duty to attempt the prevention of this disease in the children, which their slaves should produce. She first enquired into the manner, in which negroe women in child-bed, and their new-born infants, were treated upon plantations in that island, and she found this so different from what she believed, from experience, to be proper, for she had borne ten children herself, that she thought she saw in it a sufficient reason for frequent deaths among the infants, though unable to determine under what forms these should occur. She therefore drew up rules for the management of the mother and child, during the first month after the birth of the latter, in which she attempted to assimilate the treatment of both to that, which she and her own infants had received on like occasions. The consequence, perhaps, has been, certainly the fact is, that out of seventy-one children which have been born upon her husband's plantation, since her rules were given, only one has died of tetanus, though the plantation had been newly formed, and almost all the slaves had been lately

imported from Africa, circumstances which tend to increase the number of deaths at all ages, upon a West India estate. It seems therefore very clear, that whenever the preservation of the lives of negro children shall become an object of greater importance, than it has hitherto been, to West India proprietors, which will probably soon be the case, from the ceasing of the slave trade with Africa, deaths among those children, from tetanus, will be much rarer than they are at present.

POSTSCRIPT.

Read August 7, 1810.

AFTER the preceding paper was written, the affusion of cold water was employed, at St. Thomas's Hospital, in several cases of tetanus arising from external injuries; but they all proved fatal. Whether this was owing to the total inefficacy of the affusion in tetanus, or to its being used too late, or to

the extraordinary violence of the cases, I do not pretend to determine.

The subject of the next case of this disease, that occurred there, was Jane Johnson, a newly married woman, about twenty-one years of age, whose arm had been wounded and bruised by her falling into the hold of a ship. At a consultation held respecting her, one of the physicians mentioned, that he had been informed, that the treatment of tetanus in the Westminster Hospital was much more successful than in St. Thomas's, and that this consisted chiefly in endeavouring to support the strength of the patient during the disease, and in giving opium in small doses, merely to lessen the violence of the pain from the spasms.* It was in consequence agreed to

* I have since learned from Mr. Carlisle, one of the Surgeons to the Westminster Hospital, that it is the practice there to give to patients, affected with tetanus, from a quart to three pints of white wine daily, and a grain and a half of opium when the spasms are violent, but never oftener than four times in twenty-four hours. Calomel is occasionally exhibited as a purgative, and if the opium disagrees with the stomach, it is administered in cathartic glysters. Of fifteen patients, whom Mr. Carlisle has seen treated in this way, five have recovered.

follow a similar practice in the present instance. A violent pain in the wounded and bruised parts, which had preceded the tetanus, continued several days after its commencement. But the spasms of the muscles of the trunk and limbs were never very violent, and she had laboured under the disease six days, before she complained of pain in the epigastrium, which has been regarded by Hillary, Chalmers, and other writers, as a pathognomic symptom in tetanus. On the eighth day she died. About five hours before death, her lower jaw suddenly fell down more than an inch. I saw her two hours after, but she could not then separate the front teeth of the two jaws more than a quarter of an inch. From being able now to open her mouth, and feeling no pain, she fancied that she was recovering. Her pulse was one hundred and fifty in the minute, and very feeble. She was fretful and querulous, but shewed no sign of delirium.

In another instance of this disease, which occurred in St. Thomas's Hospital soon after the preceding, death took place in twenty-four hours after the first appearance of the

affection of the jaw. The patient was a Thames waterman, aged twenty years, whose right arm and wrist had been much shattered, six days before, by the bursting of a gun. The wounds had given him great pain, and the discharge from them had been profuse. About the middle of the night preceding his death, he awoke suddenly, as if in a fright, complaining of pain and stiffness in his lower jaw, which at this time was now and then convulsively moved, so as to occasion the biting of his tongue. I saw him accidentally, for he was under the care of another physician, about twelve hours after the commencement of the disease, at which time his sufferings from it seemed inconsiderable. At 10 o'clock the following night, according to the report of his nurse, the spasms grew more violent, and continued so about an hour and a half. He then became quiet, and ten minutes afterwards expired. This is the most rapid case of tetanus I have hitherto seen. He had not been subjected to the affusion of cold water, or to any other measure, which can possibly be supposed to have hastened his death. Hillary

makes the earliest termination of the disease to be on the third day ; but Chalmers says, that patients in it sometimes die in twenty-four hours.

Both Hillary and Chalmers mention, that when tetanus arises from external wounds or bruises, the pulse in the intervals, between the violent attacks of spasm, is not more frequent than in health. I did not keep a regular account of the state of the pulse in any of the cases I have seen of this disease, except in that of Margaret Norris. The pulse in her, on the third day after her jaw had become rigid, was a hundred and ten ; the day following, after cold water had been twice poured upon her, and the disease had begun to lessen, it was eighty-eight. It continued to be of this frequency for several days, and then returned gradually to its natural state. The pulse of Jane Johnson, on the fourth day, was a hundred and sixteen ; on the sixth, a hundred and fifty-six ; and on the eighth, the day of her death, a hundred and fifty, as I have already said. In a young soldier, who died on the third day of the disease, the pulse was on the

second, a hundred and seventy.* These facts, though few, seem to confirm the opinion which I formerly mentioned, that, in tetanus, a diseased state of the heart and blood vessels may supply the place, either wholly, or in part, of spasms in the external muscles.

Mr. Carlisle, Surgeon to the Westminster Hospital, has communicated to me another instance of the occurrence of tetanus, during a salivation produced by mercury. I shall transcribe his own words.

" Soho Square, January 16, 1810.

The following case is given to me by Mr. James Donnelly, a very respectable and experienced practitioner of medicine, now living in King-street, Bloomsbury. Several years ago he had the care of a man, about thirty years of age, who was affected with a

* This patient, from the commencement of the tetanus to the time of my seeing him on the second day, had experienced no pain in the epigastrium. He died before I went to the Hospital the day following. I was informed by his nurse, that, when he slept, the front teeth of his lower jaw were half an inch distant from those of the upper. The disease had occurred in consequence of some mechanical injury, the kind of which I have forgotten.

venereal node on the tibia. Mr. Horsley, a surgeon, then residing in Rathbone Place, being called in, applied a caustic, and the portion of bone, which was rendered dead, was forced away by an operation, as soon as it became sufficiently detached. He was put under a course of mercury by inunction, which kept his mouth sore for about ten weeks, towards the close of which time, and before the influence of the mercury had ceased, he was attacked with tetanus; the wound was then nearly cicatrised. After a dangerous struggle, he recovered. The medicines principally employed were Dover's powder, and other forms of opium."

I have now related three instances of the occurrence of tetanus, while the body was strongly acted upon by mercury. Two of the three cases terminated in health. This, indeed, may have been accidental; but it is also probable, that the recoveries were the consequence of a state of the system, which had been induced by the previous use of mercury, and, in a disease of such danger, probability is a sufficient ground of action. It is my intention, therefore, whenever another case of tetanus shall come under my

care at its commencement, to have a large quantity of strong mercurial ointment, at least two ounces, immediately rubbed on the skin of the patient, in the hope of quickly producing the peculiar state, which is given to the human body by the introduction of mercury into it in a large quantity.*

* About three months after the preceding Postscript was read, another patient in St. Thomas's Hospital recovered from tetanus, upon whom cold water had been poured. He was a country labourer, forty years old, whose hand had been wounded, and considerably bruised, thirteen days before he was attacked with that disease. The symptoms were so mild at first, that, after he had been affected with them two days, he walked three miles, and they had existed nearly four days before he spoke of them. He took first thirty drops of tincture of opium every six hours, and afterwards the same quantity every four hours, means being at the same time used to keep his bowels open. This plan was persisted in four days, during which the patient became worse. Six gallons of water, of about the temperature of 60° of Fahrenheit, were then poured upon him, and the same application was directed to be repeated every four hours. The use of the tincture of opium was continued. The next day he was decidedly better; but no additional amendment was, upon the whole, perceivable during the seven following days. At the end of that time, the signs of returning health began to appear, and in two months his recovery was complete. The affusion of cold water was employed every four hours for eight days. It was afterwards used less frequently, and in a short time discontinued. The tincture of opium was given somewhat longer. The patient was under the

care of Dr. George Currey, one of the physicians to St. Thomas's Hospital, who means to publish a much fuller account of his case.

The affusion of cold water was resorted to, in this case, on the eighth day of the disease, before which time, death most commonly takes place in tetanus. In the case of Margaret Norris, formerly described, the same remedy was first applied about the beginning of the fourth day, before which, death frequently either occurs, or appears to be fast approaching, in that disease. Possibly, therefore, the affusion of cold water can be employed, with a prospect of success, in those cases only, which are slow in their progress. If this were just, it might have been useful to Jane Johnson, whose case is related in the beginning of the Postscript.

XIX. *An Account of several Persons in the the same Family being twice affected with Measles.* By MATTHEW BAILLIE, M. D. F. R. S. L. and E. &c. Read February 2, 1808.

UPON or about the 24th of May, 1807, Master Edward ———, aged ten years, was brought home from school, where the measles were prevalent, affected by a disease, which appeared to the apothecary of the family, who is a very intelligent man, to be the measles. The complaint was mild, but had the usual symptoms of measles very clearly marked. From him four sisters, and a younger brother, Henry, about eight years old, caught the disease. I saw all of them, but most frequently two of the sisters, who had the complaint most severely. They had the usual symptoms of measles, viz. fever, cough, reddish eyes, which could not bear the light, an eruption exactly like that of the measles, a swelling of the face, and a considerable difficulty of breathing. The eruption went through the usual progress of

the eruption in measles, and a cough remained in both of them for a few weeks afterwards. Henry, and one of the sisters, who was affected three weeks after the others, had the disease mildly.

About the 11th of November last, the same boy, Edward, came home from the same school, with a disease which possessed all the symptoms of measles. Several boys in the school were then affected with that disease. The three younger sisters of the family, and Henry, caught the disease from him, and I attended them. The complaint was so well marked, that I could entertain no doubt about its nature. The fever was of the usual length, the eruption put on the usual appearances, and had the usual progress; there was cough, sneezing, red, and watery eyes. One of the sisters, who had had the disease slightly in May, had it severely in November; and at the close of the disease, some symptoms of pressure upon the brain occurred, which, by bleeding copiously with leeches, blistering, and purging, very happily subsided. The eldest sister, who had laboured under the disease

last May, had it not in November last; but she had been affected with it twenty-one years before, when she was an infant, and had then caught it from some of her brothers or aunts, who had the disease at that time. Those, who were affected with the disease most severely in May, were more slightly affected with it in November; and the younger children were less severely affected with it than the elder ones. They still recollect very distinctly their sensations when they were ill in May, and they say decidedly, that they were exactly similar to what they felt in November.

From this statement, I think that no reasonable doubt can be entertained, that several members of this family have been affected with measles twice. The measles prevailed in London, and its neighbourhood, at both of those seasons, and the diseases in this family, at both seasons, had all the usual symptoms of measles very well marked. It is very possible, that an eruption may look very like that of the measles, and yet not belong to this disease; but when it is combined with the other symptoms above related, every

unprejudiced person will, I think, feel a conviction, that the disease could at both seasons be no other than the measles. If this be not admitted, there seems to me to be an end of all criteria, by which we may be enabled to ascertain the identity of diseases.*

There have, I believe, been instances of persons being affected twice by all those diseases, which commonly affect persons only once in their lives. These instances, however, are so rare, and appear so opposite to an established law in the animal œconomy, that some medical men of character have doubted, whether such instances have really occurred, and whether some mistake may not have been made by the observers of them. I can perceive, however, no sufficient ground for this opinion. There are, I believe, few laws of the animal œconomy, to which there are not some exceptions; and I can just as

* The cases above related, which occurred in May, were very different from that slight form of measles, taken notice of by Dr. Willan, in his Reports on the Diseases of London for the year 1799, as not protecting the constitution against a future attack of the disease; for they possessed all the common symptoms of measles, and in two of them the symptoms were more severe than usual.

readily believe, that some constitutions may require to undergo some particular disease twice, in order to be put upon the same footing with other constitutions, which undergo it only once, as that some constitutions require twice as much Peruvian bark, or mercury, to be administered, as other constitutions, in order to have the same effects produced upon them.

I have been induced to lay this short account before the Society, because the symptoms of measles, during both attacks of the disease, seem to have been unequivocal, and because several members of the same family were affected twice with it, which is much more rare, than a single or solitary instance of its attacking twice the same individual.

An inference of some importance from these cases is, that if any person should be attacked with measles, who had been declared to have already laboured under that disease, we ought not, for this reason alone, to question the capacity or accuracy of the practitioner of medicine, who had attended him during his former illness.

XX. *Additional Instances of Measles occurring twice in the same Person.* By MATTHEW BAILLIE, M.D. &c. Read October 2, 1810.

ABOUT two years ago, I communicated to the Society an account of the measles having occurred twice in several individuals of the same family. I have lately met with a similar occurrence in another family, a brief account of which I now propose to give, as a proper addition to my former paper.

Miss B——, aged eleven years, was seized on the 10th of March, 1810 with fever, which was in the usual time followed by the eruption, and the other common symptoms of measles. She was attended by Mr. Adams, an apothecary, in High-street, Mary-le-bone, who entertained no doubt about the nature of the disease.

On the 27th of June, 1810, I was desired to see the same young lady, who had an eruption exactly resembling that of the measles, and all the other symptoms which

usually characterize this disease, as cough, sneezing, red and watery eyes which could not bear the light. The eruption remained the usual time, and subsided in the same manner, as the eruption of the measles. Dr. Batty, and Mr. Wells, an apothecary, attended the patient along with myself, and all of us were convinced that the disease was the measles.*

Miss F. B——, aged ten years, a sister of the former patient, was seized on the 12th of March, 1810, with the fever preceding measles. The measles went through the usual course, and were marked by all the common symptoms. She also was attended by Mr. Adams, who had no doubt concerning the nature of the disease.

On the 9th of July, 1810, she was seized with fever, which was soon followed by the common symptoms of measles, viz. cough,

* Dr. Batty, who saw the child earlier in the disease than myself, and who understood that she had lately had the measles, thought at first, that it might be an attack of scarlet fever; but when the disease had acquired its full character, he had no doubt whatever of its being measles.

sneezing, the usual eruption, red and watery eyes. The disease went through, in every respect, the usual course of measles. I requested Sir Henry Halford to look at the patient, merely as an object of curiosity, and he said, that he had never seen a case of measles more strongly marked. Mr. Wells, the apothecary, formerly mentioned, also attended this patient, and was perfectly convinced that the disease was measles.

Miss Caroline B——, aged eight years, a sister of the two former patients, was seized on the 28th of March, 1810, with fever, which was followed by the eruption, and the other usual symptoms of measles. She was attended by Mr. Wells, who was perfectly satisfied about the nature of the disease.

About the 5th of July, when she was on a visit in the city, she was seized with the fever, and the other common symptoms of measles, and was attended by Mr. Langstaff, an apothecary in the neighbourhood. He was so sure of the disease being the measles, that he could not believe she had had the measles before. I saw her as soon as she returned

to the west end of the town, when the remains of the eruption were still visible on some parts of her body.

During the first attack of measles in this family, a servant maid caught the disease, which was marked by the usual symptoms, and passed through the common stages of measles.

Master B——, aged two years, a brother of the former patients, was seized with fever on July 11, 1810. This was soon followed by the eruption, and the other common symptoms of measles. He had not had the disease before, but had probably been infected by one of his sisters, who was suffering from the measles a second time.

I am persuaded that no person can consider these cases impartially, without being convinced, that three members of this family had been affected twice with the measles, within the space of about four months.

With respect to the first attacks, Mr. Adams, the apothecary, who attended the two elder sisters, had no doubt of the disease being measles. Mrs. B——, their mother, a most intelligent woman, entertained also

no doubt upon this subject. She said, that the first disease exactly resembled the second in every particular. The children were of such ages, that they could remember their feelings during the course of the first disease, and the interval of time was so short between the two attacks of disease, that their recollection was fresh upon this subject. They said, in the most decided manner, that their feelings, during the time that they suffered from both attacks, were exactly similar. A servant maid caught the disease during the first attack of measles, and a little brother caught the disease during the second attack.

These cases afford additional evidence of the fact, that some individuals are capable of being affected by measles twice. As this must depend upon some peculiarity in the constitution of the individual, it is natural to think, that it may occur in several individuals of the same family, whose constitutions may be supposed to resemble very much each other. These cases also shew, that a second attack of measles may occur shortly after the first, which is contrary to what analogy would lead us to expect.

XXI. *Cases of Inflammation, and Swelling of the Epiglottis.* By EVERARD HOME, Esq. &c.
Read June 7, 1808.

HAVING met with three cases, in which the epiglottis had become enlarged in consequence of inflammation, while the tonsils and other neighbouring parts were nearly in a natural state, and as this appearance is of such rare occurrence, that none of my medical friends have met with it, I have thought the cases worthy of being laid before this Society.

CASE I.

A man, forty years of age, rather short, of a stout make, with a tendency to corpulency, and of sedentary habits of life, in December 1789 was exposed to the rain, during a very tempestuous evening. In the course of the night, while in bed, he felt very uneasy in his throat, and was unable to swallow. The uneasiness encreased, and in the morning every thing he attempted to swallow

was immediately rejected with considerable force.

Upon examining the throat, there was no appearance of swelling in the tonsils, nor of inflammation of the palatum molle, or uvula; these parts were not even more red than they usually are. But immediately beyond the root of the tongue, there was a rounded projecting substance, of a bright red colour, bearing a very close resemblance to the glans penis in its distended state. At first, I was at a loss to know what this could be; but on examining it more narrowly, I found that it was the epiglottis much enlarged, the membrane which covers it being inflamed and thickened. It continued for three days in this state, and the patient could not swallow during that period; but there was no sensation of thirst. Leeches were applied to the outside of the throat, and immediately gave some relief. The warm bath was used, but without any apparent advantage. Dover's powder was administered by clyster, but did not bring on perspiration, or soothe the distressing symptoms. The inflammation subsided gradually, and on the fourth

day he could swallow fluids, when his thirst became excessive. On the seventh day he could take his food as usual. During the whole of the attack, his breathing was not at all affected. The parts recovered so entirely, that he never afterwards had any return of the complaint, or uneasiness in the part which had been affected.

CASE II.

An officer in the army, about twenty-five years of age, had an affection of the throat, which was supposed to be venereal. He was, therefore, put upon a course of mercury, but the throat did not recover its healthy state. Under these circumstances I was consulted. On examining the throat, a slight degree of inflammation was observed over the whole fauces. The tonsils were not enlarged, but the epiglottis was very distinctly seen. It was neither so tumid, nor of so bright a red colour, as that described in the former case, and of course did not produce the same symptoms. He complained chiefly of uneasiness in swallowing. There being no reason to consider the present appearances

as connected with the venereal disease, the patient was desired to desist from the use of mercury; but as his health was very much impaired, and as he had a cough, and a pain in the side, I recommended his consulting his physician, Dr. Hunter, who took charge of these complaints. I believe he went to a warmer climate, and died from an increase of the affection of his lungs.

CASE III.

H. O. aged thirty-two, a strong and muscular man, of a full habit, and florid countenance, in November, 1800, caught a severe cold, which lasted for several weeks, and was succeeded by inflammation and ulceration in both tonsils; which symptoms, not yielding to the common remedies, were suspected to be venereal. Recourse was therefore had to mercury, in the form of ointment. His mouth became affected in about ten days after he began using the mercury; but the symptoms were aggravated. He lost his voice, and had great difficulty in swallowing either solids or fluids; during sleep, his breathing was so uneasy,

that he frequently awoke in a convulsive start. I was at this time consulted, as to the propriety of continuing the mercurial course. Upon examining the throat, the tonsils and uvula were found to be inflamed, and slightly ulcerated, being very much, as I understood, in the same state, as when he began the use of mercury. The most remarkable appearance was the enlargement of the epiglottis, which was similar to that described in the two former cases, not quite so great as in the first case, but greater than in the second. As he had been confined for ten days to the house, and was much lowered by the effects of the mercury, I became apprehensive lest the inflammation should spread along the internal membrane of the trachea, and be continued into the lungs, and the case prove fatal. I therefore requested, that I might meet Dr. Baillie, and Mr. Cline in consultation. To both of these gentlemen the appearance of the epiglottis was new. They both agreed with me in opinion, that the mercury should be no longer used. The patient was directed to go into a salt water bath, of the temperature of ninety-

six degrees of Fahrenheit's thermometer and remain in it for half an hour, every other day ; to drink a quart of the decoction of sarsaparilla daily ; and to take gentle exercise on horseback. In ten days, while pursuing this plan, he was so much better, that he could swallow his food with tolerable ease, and sleep without the least disturbance. The epiglottis was also found much diminished in size. In ten days more, the symptoms were abated in a greater degree ; but his voice was still affected. The warm bath was now only used occasionally, and he left off taking the decoction of sarsaparilla. From this period he may be considered to have got well of the disease ; but in 1807, when I saw him last, the epiglottis continued so much enlarged, that it could be seen by looking down the throat, and his voice had never recovered its natural clearness. I am informed by a medical gentleman, who has seen the patient very lately, that he is still in nearly the same state, and that when he catches cold, to which he is very liable during the winter season, the epiglottis

becomes more enlarged, and produces an uneasiness in swallowing; but that this is always removed by going two or three times into a tepid salt-water bath.

XXII. *Three Cases of Inflammation of the inner Membrane of the Larynx and Trachea terminating quickly in death.* By MATTHEW BAILLIE, M.D. &c. Read October 3, 1809.

VERY few cases have occurred of an inflammation in the inner membrane of the larynx and the trachea so violent, as to destroy life in a very few days. I have only met with two such cases, after practising medicine more than twenty years, and this disease has not been met with at all, by many physicians of much longer experience. It seems to me, therefore, that it may be useful to lay an account of these cases before the Society.

One of them occurred in a medical friend, whom I had known most intimately for thirty years, for whom I always felt the highest esteem, and whose memory I shall constantly cherish. The other case likewise occurred in a medical friend. To these I shall add a third case, which I did not see

myself, but the particulars of which have been stated to me from an authority, on which I have the fullest dependence.

D. P. aged sixty, had been for many years subject to attacks of quincy, which had readily yielded to general bleeding, purging, and abstinence. On the 13th of last April, he felt an attack of sore throat, which was so slight, as not to affect his looks, or to interrupt his attention to his professional duties. On the evening of the 15th, he was worse, and on the 16th, he was confined to the house. I had intended to see him in the evening, even without a message, from our habits of friendship, but I was sent to by his wife, and I called about ten. He was then lying upon his left side, in some degree across the bed, and spoke thickly from the swelling of his throat. His skin was hot, and his pulse frequent, but not hard. He had been bled copiously by his own desire, and the blood was very buffy. He had also taken some opening medicine, and had applied a blister to his throat. The blister, however, had occasioned so much irritation, that it was taken off before it produced its

full effect. He did not consider himself to be in danger, and I thought that the disease was nothing but what he had often experienced, with a little more than its usual severity. This was so much impressed upon my mind, that I did not even examine his throat, nor did he seem to wish it. During the night, the symptoms became more violent, and a considerable number of leeches were, very early in the morning, applied to his throat. About eleven o'clock in the forenoon, I called upon him, and found him sitting up; but his countenance was very pale, his pulse feeble and unequal, and his voice almost lost. There was some difficulty of breathing, but this was without any particular noise, or spasmodic character belonging to it. He had, however, an uneasy feeling in the larynx, and he wrote down with a pencil on a piece of paper, that his complaint was to be considered as croup. When the parts in the throat and mouth were inspected, the tongue was found to be very much swelled, and the under surface of it was exceedingly red. The *velum pendulum palati* was also red and swelled;

from the thickness of the tongue, the tonsils could not be seen distinctly. During this visit, Mr. Home called upon the patient, and after some conversation between him and myself in another room, it was agreed, that an instrument should be passed into the velum pendulum palati, to allow of matter being discharged, if any were there. An instrument was passed, but no matter was discharged. The patient thought himself, however, a little relieved by the small quantity of blood, which issued from the wound. At this time, he was incapable of swallowing any thing. It was agreed, that Mr. Home and myself should return in the evening about ten, and Dr. Wells, who had been long intimate with the patient, was to be requested to meet us. I called by myself between four and five in the afternoon, and found him in bed. His pulse was then regular, not deficient in strength, and not very frequent. He was breathing with difficulty, and was a little drowsy, but his countenance was expressive of less distress. He thought himself; and I also thought him, somewhat better. About eight o'clock in

the evening, he became suddenly worse, and in less than half an hour afterwards he died. On the 19th of April, the second day after his death, about twelve o'clock, the body was examined by Mr. Brodie, in the presence of Dr. Wells, Mr. Home, and myself. The tongue was found still considerably swelled, but not in the same degree as during life, and its under surface was of a red colour. The posterior and upper surface of the tongue was also red, but in a less degree. The velum pendulum palati, and the tonsils, were inflamed, but were not much swelled. The tonsils contained no pus. The epiglottis was at least twice as thick as it is in health, and stood more erect than usual. When the inner surface of the larynx was examined, the membrane which lines it was found to be much inflamed, and somewhat thickened, and a small quantity of a thick purulent fluid was found in the sacculi laryngis. The inner membrane of the trachea was likewise found to be inflamed, but not in the same degree as the inner membrane of the larynx. The lungs were sound, but did not collapse upon taking

off the sternum, and the anterior extremities of the ribs. Some slight marks of disease were found in the coats of the aorta, but these had no connection with the disorder of which the patient died.

CASE II.

I. M. H. aged fifty-nine, was taken ill on the 16th of last July. He came to my house that morning about ten o'clock, and told me, that he felt some uneasiness in the larynx, a little to the left side. His skin, however, was not hot, and his pulse was not more frequent than in health. When I looked into his throat, the uvula appeared a little redder and fuller than natural, and the arch of the soft palate was also somewhat redder; but these circumstances were so little marked, that upon a superficial observation they would hardly have been noticed. The patient, however, was a good deal anxious about himself, because he had laboured under an inflammation of his throat about fifteen years before, which had nearly proved fatal. He was directed to have seven or eight leeches applied to his throat, and to

take an opening medicine. The next morning, between eleven and twelve, I saw the patient at his own house. He was then somewhat worse, but his breathing did not appear to be laborious, and his pulse was very little accelerated. More leeches were directed to be applied to his throat, but he rather preferred to have blood taken from his arm. Twelve ounces of blood were therefore ordered to be taken from his arm, and a blister to be applied to his throat. During this day, he was bled, at his own desire, three times, so as to lose altogether between thirty and forty ounces of blood. The blood was buffy the two first times, but at the third time it was not so. I called upon him between ten and eleven in the evening, and he was then considerably worse. His breathing was beginning to be laborious, and there was a particular noise in it, which could be referred to the larynx. An emetic was prescribed, with the view of forcing up any mucus, which might be lodged in the larynx or trachea; some cooling expectorating medicine was directed to be taken every three hours; and the vapour from a decoction of

white poppies, mixed with some vinegar and tincture of myrrh, was recommended to be often inhaled. The next morning I found him still worse; and I then hinted to him, that I wished he would allow me to consult with another physician. I met Dr. Reynolds at six that evening. The patient was then much worse than in the morning, his breathing being more laborious, and there being sometimes very considerable threatenings of suffocation. Dr. Reynolds recommended, that he should take immediately forty drops of laudanum, in a mucilaginous draught, to which I readily assented. The patient went that evening into the warm bath, and took likewise, in consequence of his own desire, at two different times, an additional quantity of laudanum, so that the whole quantity taken amounted to ninety drops. At ten o'clock that evening, when we met again, he was considerably easier, and his breathing was improved. At the former consultation, I had proposed that the operation of bronchotomy should be performed, and this was agreed to by Dr. Reynolds, if the opiate should be found of no

use. In the night time, the patient becoming much worse, Mr. Tegart, who scarcely ever left him either day or night, sent for Mr. Home and Mr. Wilson to perform the operation of bronchotomy. Mr. Wilson was out of town upon professional business, but Mr. Home came about four in the morning. The patient, however, was beginning to sink, so that no advantage from an operation was now to be expected. I was called up at five, and found the patient in a dying state. He expired at six in the morning of the 19th of July.

Early on the 20th, the body was examined by Mr. Home, Mr. Wilson, Mr. Tegart, Mr. Brodie, and myself. The posterior part of the upper surface of the tongue was a little red, but the tongue was not increased in thickness. The tonsils, and the velum pendulum palati were slightly inflamed. The epiglottis was much thickened, and stood erect, so as to leave the cavity of the larynx altogether uncovered. The inner membrane of the larynx was much inflamed and thickened, and there was a little thick purulent fluid in the sacculi laryngis. When

the cut edges of the larynx, which had been slit behind, were brought in contact with each other, the cavity of the glottis was found to be almost obliterated, by the thickening of the inner membrane of the larynx at that part. The inner membrane of the trachea was likewise inflamed, but in a less degree. The lungs did not collapse upon opening the chest, but they were sound in their structure.

CASE III.

I did not see the patient who is the subject of this case, but the particulars of it were related to me by one of the medical gentlemen who attended him, and on whose accuracy I can place the fullest reliance. The disease seems to have been precisely of the same kind with that described in the former cases, and therefore I think it proper to subjoin the account which I have received of it.

— T., aged forty-two, had been subject to attacks of quinsey. He was seized with pain in his throat on the 9th of April, about six in the morning, and immediately sent for his apothecary, Mr. Pennington, of

Lamb's Conduit-street. When his throat was looked into, it appeared slightly red and full, so as to resemble what is often called a relaxed throat. His pulse was small and frequent, but not hard; his countenance pale and bad, and his breathing difficult and spasmodic. The pain in the throat he referred to the larynx, and described it as a grasping feeling. In the progress of the disease, he complained of pain in the upper part of the chest. When Mr. Pennington first saw him, he took twelve ounces of blood from his arm, which was not buffy, and applied a large blister to his throat. He advised him immediately to send for Dr. Pitcairn, who saw him, in consequence, about ten in the morning. He directed sixteen ounces of blood to be taken from his arm immediately, and twelve leeches to be applied to his throat. He directed also a saline draught, with a few grains of James's powder, to be taken every four hours. The patient's bowels were at that time loose, and therefore purgative medicines were unnecessary. When the patient complained of pain in the upper part of the chest, a large

blister was directed to be applied there. From none of these remedies did he receive benefit, and he died on the 12th of April. His body was not examined; but, in my opinion, no reasonable doubt can be entertained of the disease in this case being of the same nature, with that described in the two former cases.

These cases naturally suggest the following remarks. Each of the individuals had been more or less subject to inflammations of the throat, and therefore that part, together with the parts in the neighbourhood, may be supposed in them more liable to disease, than in most other persons. As these three cases occurred in one season, and near each other, it is probable that the state of the atmosphere was of a peculiar kind, so as more readily to excite inflammation of the inner membrane of the larynx and the trachea, than in an ordinary season. This opinion is, in some measure, confirmed by slighter inflammations of the inner membrane of the windpipe having been more common than usual, during the same season.

As in two of the cases there was an inter-

course between the individuals, it may very naturally be a question, how far the disease was infectious. This, however, does not seem to have been the case, as no other individual was affected among a considerable number, who saw these patients, and attended upon them.

This disease had a strong resemblance to croup, but is still to be considered as different from it. There was not the same kind of ringing sound of the voice as in croup, and no layer of coagulable lymph was formed upon the surface of the inner membrane of the larynx and trachea, which uniformly attends the latter disease.

The most important consideration, however, is, how is this disease to be treated? It appears evidently from the cases which have been related, that both general and topical bleeding when employed early, and strenuously, was of no real use. Nor was any benefit derived from blisters, or purgative, expectorating, and cooling medicines. What plan of cure, therefore, should be instituted to prevent the fatal effects of this most formidable disease?

As the inflammation in this disease is phlegmonic, it may be advisable, at the very beginning of the attack, to take so much blood from the arm at once, as to produce fainting. It is possible, that benefit may be derived from this measure, although large bleeding in the common way was of no use, in any of the cases which I have related. Opiates likewise might probably be employed, with advantage, to remove the spasm of the glottis, which certainly has some share in producing the difficulty of breathing, more especially where there are occasional feelings of suffocation.

If no substantial advantage is produced by this plan in thirty hours, it might be advisable to perform the operation of bronchotomy at the upper part of the trachea, just under the thyroid gland. This operation would probably enable the patient to breathe till the inflammation in the larynx, more especially at the aperture of the glottis, had time to subside.

Whether this operation would be successful can only be known by experience; but as far as we can judge a priori, it has so

reasonable a chance of success as to justify our making a trial of it in so fatal a disease, and thereby to ascertain, practically, the degree of benefit, which may be derived from it.

XXIII. *A Case of sudden Death during Parturition, with an Account of a singular Disease of the Uterus, which was discovered upon opening the Body.* By Mr. CHARLES MANSFIELD CLARKE, Surgeon, and Teacher of Midwifery in London. Read August 2, 1808.

IT is my intention, in the following paper, to communicate the history of a case of sudden death in labour, and an account of the appearances upon dissection. It is a case which I believe to be perfectly new; at least I have not met with it in the course of my reading or practice, nor have I heard of it from any of my medical friends.

A woman, between the age of twenty and thirty, fell into labour of her first child, about eight o'clock in the morning, under the care of a midwife. Her labour pains came on gradually; but about ten o'clock, she was suddenly seized with great pain in the belly, and nausea, which did not end in vomiting. Great irritability succeeded,

with faintness and excessive restlessness; and at half an hour past ten, she died undelivered. I had been sent for; but being engaged, a medical man, who practised midwifery, was called. He went immediately; but before he reached her, she was dead. Thinking that the child might yet be saved, he set about delivering her. The os uteri, though not completely dilated, readily admitted the introduction of his hand. The head presented: this he passed by to get at the feet, which he brought down, and soon extracted a dead child. He again introduced his hand, and removed the placenta.

Upon the following day, the cavity of the abdomen was inspected while I was present. There was nothing uncommon in the appearance or disposition of the viscera. The uterus was in some measure contracted, its cavity not being capable of holding more than a quart. After the appearances, which first presented themselves, had been examined carefully, I gently turned the fundus of the uterus over the pubes with my hand, so as to bring into view its posterior surface. In the fold of the peritonæum which dips

down into the pelvis between the uterus and the rectum, I observed about an ounce of blood ; and upon that part of the peritonæum, which covers the posterior surface of the uterus, there were between forty and fifty transverse lacerations, none of which were in depth above the 20th of an inch, and many were merely fissures in the membrane itself. They varied very much in length, some measuring one inch, some two inches, whilst the length of others did not exceed the fourth part of an inch. The space, upon which they were situated, extended from one side of the uterus to the other, and occupied the greater part of its whole posterior surface. The edges of these lacerations were thinly covered with flakes of coagulated blood, and there could be no doubt, that the blood found in the fold of the peritonæum had escaped from the lacerations. The muscular part of the uterus was perfectly whole. The vagina and the cavity of the uterus formed, as usual, one continued line, there being no vestige of the part, at which the former terminated, or the latter began. The cavity of the uterus exhibited a plain surface,

the part, to which the placenta had been attached, being marked by a circumscribed roughness caused by the mouths of the vessels, which had before supplied the placenta with blood.

In the symptoms, and in the fatal termination, there is some similarity between this case, and that called "rupture of the uterus." Had there been no difference between them, it would have been superfluous to have detailed it, after the observations which may be found scattered through the works of different writers, and particularly the mass of evidence upon this subject, which has been collected with so much care, and from which such excellent practical inferences have been drawn, by Dr. Douglas. In all the cases of rupture of the uterus, the laceration is in its muscular part, and extends to the peritonæum, whose strength is not sufficient to keep in contact the edges of the lacerated part. There are some cases on record of rupture of the uterus ending favourably. But in all these cases, with the exception of Mrs. Manning's, related by Dr. Douglas, in which, though it ended favourably, the child had

certainly escaped into the cavity of the abdomen, it may be presumed, that the muscular part of the uterus alone was injured; and that, the peritonæum being whole, there was in reality no opening into the cavity of the abdomen. If this supposition is founded in fact, the want of the vomiting of the coffee-coloured matter, which distinguishes this case, may perhaps be explained, as this symptom may depend upon the injury done to the uterus itself, and may not attend a mere injury of its coat.*

Whatever may be the cause of this vomiting, the matter brought up is very remarkable, and, as far as I know, is very unlike any thing which is discharged from the stomach in any other disease. In a case of rupture of the uterus, to which I was called two years ago, when the child had escaped into the cavity of the abdomen, whence I delivered it by turning, the matter vomited was as black as ink.

Upon reflecting on the different circumstances of this case, it is difficult to conjec-

* "Uteri affectus fere omnes ventriculo nocent." Heberden, *Commentarü de Morbor: Historiâ*. C. 97.

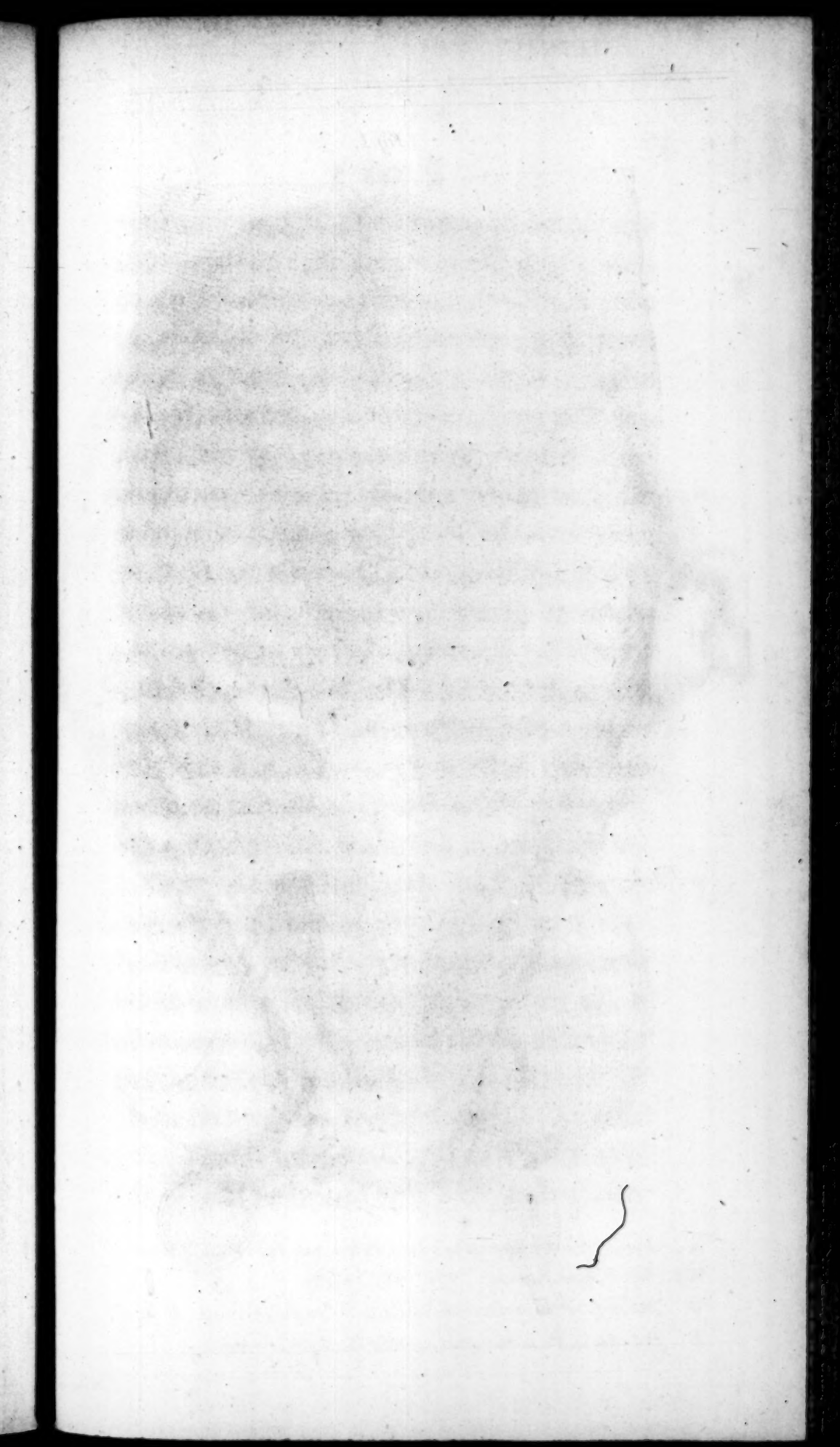
ture, how the lacerations were produced. It might be supposed; 1st, that the uterus was so full, as to put the peritonæal covering so much upon the stretch, that it necessarily gave way; 2dly, that sudden contraction of the uterus might be the cause; and 3dly, that in the motion of the child, a limb might forcibly strike the uterus, or be pushed through it by the midwife.

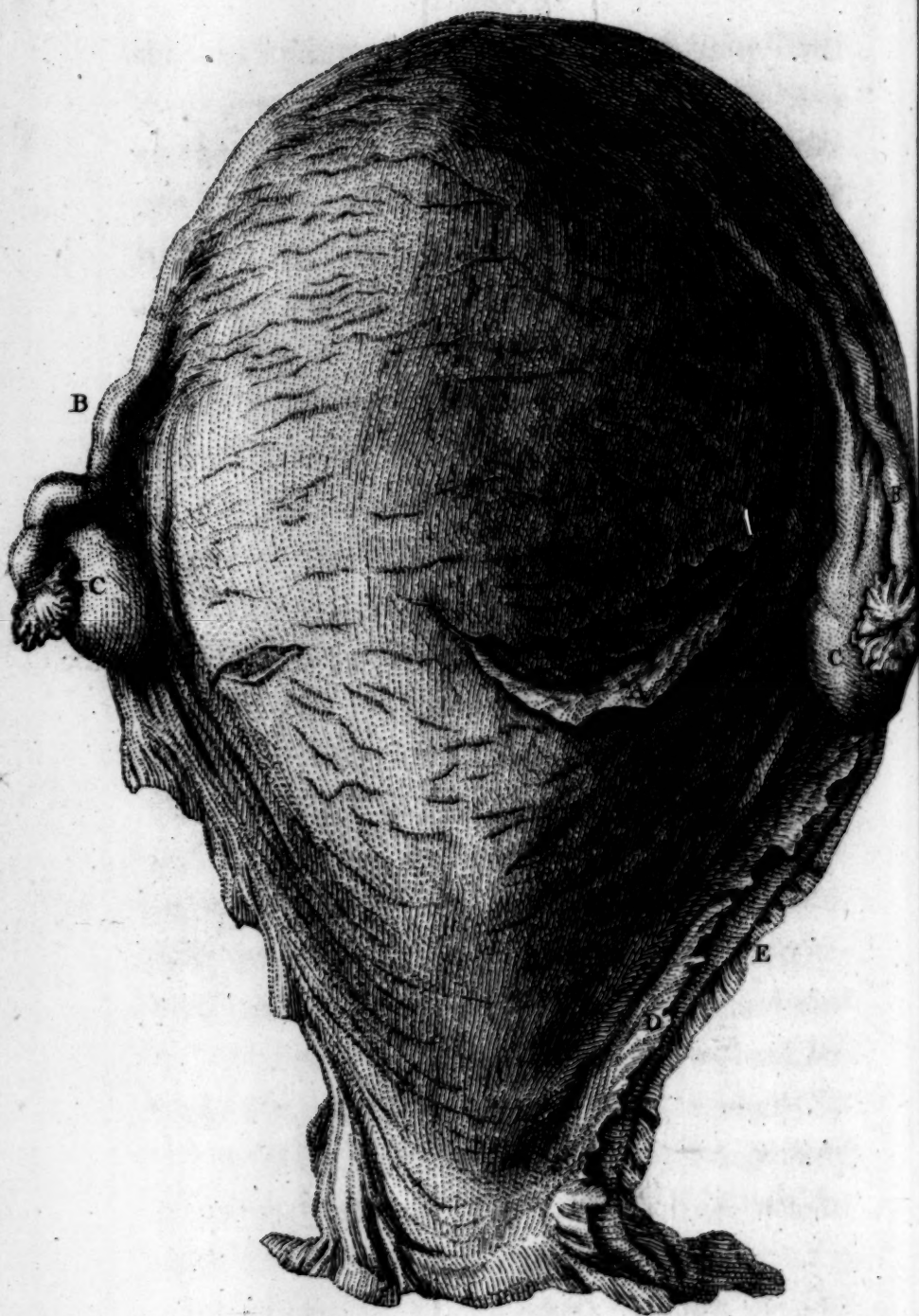
With regard to the first supposition, it is to be remarked, that the uterus is never quite full, even in pregnancy; as a proof of this, if a section is made of the vessels of the uterus, they will be found cylindrical, which they would not be if stretched. As the uterus had begun to contract, (and that it had, the dilatation of the os uteri is a proof) its bulk was consequently diminished, and the peritonæal covering rendered less tense than before; so that, if it was possible for distention to have been the cause, it should have happened before labour began, at which time the bulk of the uterus was greatest.

In answer to the second supposition, it is to be observed, that no contraction of the uterus could be the cause. For even allow-

ing the peritonæum to be inseparably connected with the muscular part of the uterus, and granting that some of those fibres, which begin at the anterior part of the cervix of the uterus, pass over the fundus, and end at the opposite point, were in a state of such contraction as to rupture the peritonæum, in the same manner as contraction of the soleus and gastrocnemius muscles ruptures the tendo Achillis, still we should expect to find the uterus itself also ruptured, and only one transverse laceration of the peritonæum, its length depending upon the degree of contraction of the uterus. For any farther contraction of the uterus (one laceration being already produced) would not produce more, but elongate or stretch open, or both elongate and stretch open, that already made.

It may be objected to the third supposition, viz. that the injury might be produced by a sudden blow from the limbs of the child against the parietes of the uterus, or by an ignorant person pushing the presenting part forcibly upwards, that there is no instance on record of this injury happening, whilst the membranes are whole, and before





- A. A very extensive laceration of the Peritoneal coat of the Uterus.
 B B. The Fallopian tubes. C C. The Ovaria.
 D. The edge of the peritoneum covering the posterior surface of the Uterus.
 E. The edge of the peritoneum covering the anterior surface.

the liquor amnii has escaped, which in this case had not happened when the woman died ; and that were it even possible, it is to be presumed, that the muscular part of the uterus would be injured, as well as, and probably before, the peritonæal coat.

The parts were removed from the body, and have been seen by Mr. Home, Dr. Clarke, Mr. Wilson, and several of my other medical friends. The preparation is preserved in Mr. Wilson's Collection, in Windmill-street.

The drawing of the parts was made with great accuracy, by my friend Mr. Daw, while House Surgeon of St. George's Hospital.

XXIV. *Two Cases of Tumour of the Uterus.*

By JOHN CLARKE, M. D. Read December 6, 1808.

TILL of late years, the diseases of the uterus, and its appendages, have been very little known, and even the present stock of knowledge upon this subject is more confined, than that of the diseases of most other parts of the body.

The early stages of disease in these parts are generally passed over without examination, partly because the symptoms are slight, and partly because women (in this country at least) are unwilling to explain to medical men the disorders of the sexual organs. Besides, it has been but too common to prescribe for diseases of these parts, without making such examination, as can alone throw light upon them; so that they have arrived often to a point, at which no relief can be given, before their nature has been understood.

As increased bulk, and discharges of blood

or other fluids, are common to many of the diseases of the uterus, it is desirable that these diseases should be distinguished from each other. The late Dr. William Hunter rendered, as I conceive, a great service to society, in pointing out the difference between scirrhus of the uterus, and the enlargement of this organ from tumours of another kind, to which he gave the name of the fleshy tubercle.

The two cases which follow are new to me, and I have not seen any description of similar cases in any books, which I have met with. I therefore lay them before the Society, as making some addition to the stock of knowledge on diseases of the uterus.

CASE I.

A. B., a married woman, about twenty-five years of age, had always, before her marriage, enjoyed good health, and menstruated regularly. About three or four years after her marriage, during which period she had never been pregnant, the discharge of the catamenia became more abundant, and lasted longer, than formerly, so that her constitu-

tion appeared to suffer, yet not enough to make her apply for medical assistance. Her attention to her situation was first excited by finding, as she lay in bed, a tumour on the left side of the abdomen, as large as the head of a child at the time of birth. This increased in size without giving any pain, and put on very much the form of a gravid uterus. At this time an account of the case was drawn up, and transmitted to me from the country,

As it was impossible to form any accurate opinion of the case, without seeing the patient, I proposed that she should be brought to town. In the meantime some new symptoms took place. The tumor continued to enlarge, so as to press upon the rectum and bladder, producing constipation of the bowels, and suppression of urine. On examining the parts, in order to introduce the catheter, the surgeon in the country found a large, hard, and insensible tumour, projecting from the uterus into the vagina. From a notion that it might be of the nature of polypus, some ineffectual attempts to remove it were made; after which she came to London, where she

was seen by me, and afterwards, by Dr. Baillie in consultation.

At this time, the uterus was nearly as large as at the termination of the sixth month of pregnancy, and from the os uteri, which was very high up, and with difficulty reached with the finger, a large tumour was found to project, spreading suddenly, and filling the cavity of the pelvis. From the lower and anterior part of it, a process, four or five inches long, protruded into the os externum, and projected externally, so as to be extremely troublesome, by irritating the surrounding parts. This process was altogether insensible to the touch.

It was thought advisable to remove the process by a ligature, close to the tumour from which it projected. This was done, and temporary relief was obtained; but in the course of a few weeks, a similar projection required a similar removal, and this became necessary at different times till her death, which happened at the end of the year 1807. The whole quantity removed, in the course of two years, was very considerable. At one time it was judged proper

to attempt the removal of the whole of the tumour in the vagina; but, from the figure of it, a ligature could not be applied. At different periods, in the course of the disease, pains resembling those of labour occurred; but they were not of long duration. The most urgent symptoms were the increased discharge of the catamenia, and occasionally considerable attacks of hæmorrhage, in consequence of which she was gradually worn out. The discharge was sometimes very offensive; but this is common to all diseases of the uterus, in which there is a tumour capable of preventing the entire evacuation of the menstrual fluid, or of any blood, which may be effused from the vessels of the uterus. The body was not examined after death.

There seems to have been some affinity in this disease to the polypus of the uterus; but the size exceeded any tumour of that kind which I ever saw, or heard of; and I never knew any instance, in which such tumours formed projecting processes, like that which has been described in this case, and were regenerated in a similar manner, after removal by a ligature.

CASE II.

In the year —, I was desired to see an unmarried lady, about thirty-five years of age, who had suffered at various times from profuse menstrual discharges, and pain in the abdomen, particularly on the left side.

On examining the state of the os uteri, it appeared healthy ; but the uterus was drawn up higher than usual, and was heavier than natural. On the left side of the abdomen, between the linea alba and the superior spinous process of the ilium, two distinct tumours could be felt. Of these, the largest was of about the size of two doubled fists of a moderately sized man ; the smallest was of about half the size of the other. At the time when I first saw her, she was in violent pain, occasioned, as it appeared, by an inflamed state of the tumours, which were very tender to the touch. The pain was attended with a considerable degree of febrile heat, increased frequency of the pulse, whiteness of the tongue, and thirst. These symptoms were relieved by the application of leeches, and fomentations, the use of the

warm bath, and opium, given by the mouth and in the form of glysters. The tumours, however, remained.

Generally, a little time before the appearance of the catamenia, there was a return of the above mentioned symptoms, which were relieved by the use of similar remedies, and in the time, which intervened between the paroxysms, she was able to walk about, and sometimes to take exercise in a carriage. In this way she continued for two years, during which period I seldom saw her.

When I was again desired to visit her, the symptoms of her disease were entirely changed. She had been frequently attacked with profuse hæmorrhage from the uterus, and had scarcely ever been free, for several months, from an offensive discharge from the vagina. On pressing the abdomen, I could not find the two distinct tumours, which were there before; but instead of them I felt a large tumour, evidently of the uterus, reaching nearly to the pit of the stomach, and in the feel exactly resembling the tumour of pregnancy. On examining the vagina, I perceived that it was filled with a

soft spongy tumour, issuing from the os uteri, very tender in its consistence, and admitting very readily of separation of its parts. She was sinking rapidly from the discharge of a bloody water, mixed occasionally with coagulated blood in large quantity, so that it was thought advisable, to attempt to make a ligature on that part of it, which was in the vagina. This was done, and a large quantity, as much as would fill a pint measure, was brought away. The discharge lessened for a short time, but a fresh quantity of a similar excrescence in a few days projected from the os uteri, and again filled the vagina. No advantage seemed to have arisen from the first ligature; it was therefore not repeated. Several large masses sloughed away spontaneously, from time to time, till at length she was exhausted by the profuse discharges which took place, and died.

Leave was obtained to inspect the body, and the parts involved in the disease were removed, for the purpose of more accurately examining them.

The uterus, externally, had every appear-

ance, which a uterus has at the end of the seventh month of pregnancy. Near its fundus, at the anterior part, were situated two small tumours, of about the size of a wren's egg, of the nature of the fleshy tubercle. On cutting into its cavity, its substance appeared to be of a thickness equal to that of a gravid uterus. From about two thirds of its internal surface, grew a substance similar to that above described, soft, but fibrous. The direction of the fibres was towards the os uteri, but the parts were easily separable from each other in all directions.

There did not appear to be any orifices of vessels in the sound parts of the sides of the cavity ; so that the discharge came from the spungy excrescence, and not from the uterus itself. A portion of the excrescence, and one also of the uterus, are preserved in my collection.

A very remarkable circumstance in this case deserves to be noted, which is, that the tumours, which I discovered in my first examination, were not to be found on inspecting the body after death, unless the two

small tumours near the fundus of the uterus were the remains of them, the rest of them having been absorbed.

This is to me quite a new occurrence, and was not to be expected, because they had all the feeling of solidity, and gave to the hand, applied on the abdomen, the same impression as the common fleshy tubercle.

The patient through the course of the disease was attended by Sir Walter Farquhar, Mr. Chilver, and myself; and the parts were examined in our presence.

XXV. *An Account of an Excrescence from the Womb attended with uncommon Circumstances.* By THOMAS DENMAN, M. D.
Read July 4, 1809.

IN the year 1793, a lady, upwards of thirty years of age, who had borne many children, and was lately become a widow, had irregular returns of the menses. These in a short time became profuse, and were accompanied with slight pains, like those which attend the commencement of labour. For this disorder, she had consulted many physicians, and taken a great variety of medicines, but without any other benefit than what was merely temporary.

In the year 1802, she applied to Dr. Baillie, who discovered a polypus in the vagina. I was soon afterwards desired to visit her, and finding the polypus of that kind, and in such a situation, that it could be tied, a ligature was passed over it, on the 4th of December in the same year. The ligature came away on the 12th. and a tumour of a

considerable size, and pyriform shape, was removed; not a vestige of it remaining in the vagina. The os uteri closed, and was in a perfectly healthy state; every kind of discharge ceased, and she returned into the country in good spirits, and apparently in good health.

In February, 1803, she was much troubled with the hæmorrhoids, from which she was relieved by the occasional application of one or more leeches, and by other common means used for that disorder.

After a few months, the discharges, which had before accompanied the tumour, returned; and in the latter part of this year, Mr. Croft passed a ligature round the stem of another polypus, of about the same size with the former; but it did not come away till the twelfth or fourteenth day after. This operation succeeded as happily as the former, and she soon returned again into the country free from complaint.

In a short time, the hæmorrhoids were again very troublesome, and she was relieved by the means formerly used; but it was not long before the discharges from the

vagina returned. Then was first observed a circumscribed tumour arising out of the pelvis. This was supposed to be the uterus, distended by a mass of excrescence contained in its cavity, a portion only of which had descended into the vagina. On this presumption, though a tumour could be distinctly felt in the vagina, and was in a state admitting of an operation, this was deferred till November 4, 1804, when the discharges being very profuse, though the tumour occasioned by the enlarged uterus was not diminished, I again passed the ligature. This tumour was of a softer texture than those before removed, and came away on the fourth day. From this time the os uteri was never perfectly closed, nor was the patient ever afterwards clear of some kind of uterine discharge.

Early in 1805, there was reason to believe that another polypus was descending; and though this was soon perceptible in the vagina, it was again thought eligible to defer the operation, that the whole of the excrescence, supposed to exist in the uterus, might be excluded, and come within the reach of

a ligature. But after twelve months, without there being any reason to think the tumour of the uterus was lessened, the ligature was again passed in September 1805. The excrescence was removed after a few days, as in the former instances, but the benefit obtained was of short duration.

The swelling above the pubes being now suspected to be an enlargement of the uterus from disease, she was put upon a course of small doses of calomel, and precipitated sulphur of antimony, and drank a pint of the decoction of sarsaparilla daily, for upwards of a month, but without any lessening of the tumour, or abatement of the discharge. I forbear to mention the other modes of treatment which were at different times enjoined, because they were either not productive of any apparent benefit, or were merely intended to relieve some urgent or troublesome symptom.

A considerable portion of excrescence was again soon perceived in the vagina. The os uteri seemed to be free from disease; but it was now so much dilated at all times, that I could readily discover the root of the

excrecence, and ascertain, that all the substances, which had been taken away, had originated in the same precise part.

After every operation, so long as the patient was sensible of benefit, though of ever so short a continuance, she entertained hopes of a perfect recovery; but she now began to perceive her health affected, to be apprehensive, and often talked of the probably fatal event of the disease.

In March, 1806, I endeavoured to pass the ligature, but did not succeed till after the third attempt. The present tumour was larger than any of the former, and consisted of two large fleshy leaves, of the form of a human kidney, both shooting from the same stem; but every part within reach was clearly removed, the ligature having been fixed within the cavity of the uterus, upon the very root of the excrescence.

Having failed to pass the ligature in my first attempts in this and other instances, it seems right to take notice of the cause.

The excrescences varied in their texture and form each time, especially after the third operation. When the surface became

unequal, the ligature often hitched upon the inequalities. This embarrassed me, and occasioned so much fatigue to the patient, that I was sometimes obliged to desist. Latterly there was a great disposition to hæmorrhage, and whenever this was brought on by accidentally rubbing the surface of the substance, I judged it proper to stop, and to wait till the opened vessels had time to close. The stem of the polypus was enlarged after the later operations; so that, though the ligature was passed close to the root, it was apt to slide down in the act of tying. If at any time I did not fix the ligature completely to my satisfaction, it was always removed immediately.

In April, 1807, after several vain attempts to pass the ligature, both by myself and Mr. Croft, who had assisted me on all these occasions, it was at length properly fixed, and did not come away till the ninth day. A large quantity of excrescence followed, but the benefit the poor patient received lasted a very short time. The discharge, which was of a sanious kind, was not only profuse,

but offensive in its smell. The tumour above the pubes was also much enlarged.

Before the end of that year, the vagina was again filled with excrescence, unequal in its surface, and of a more spongy texture than usual. My hopes of the ultimate recovery of this patient were very little, but being anxious to prolong the life of a person of the utmost consequence to her family, I attempted again in June, 1808, to pass a ligature, and succeeded. The discharge was lessened for a short time, but the vagina was again soon filled with excrescence.

In February, and in May, 1809, two fruitless attempts were made to pass the ligature. Mr. Croft and myself then agreed to fix a small pair of denticulated forceps, not unlike those used in lithotomy, firmly on the stem, with the intention of occasioning the whole to decay, and of destroying, if it were possible, the regenerative power. But while we were preparing for this, the patient after passing the day, (June the 3d) without any unusual complaint, went to bed in good spirits, but was found the next

morning in a state of insensibility, with stertor. In this state she remained about twenty-four hours, and then expired.

Leave was given to inspect the body, which she indeed had often expressed a wish might be done.

The head was the part first examined. Nothing particular was observed about the membranes or surface of the brain; but in the ventricles were found about four ounces of blood, separated into coagula and serum. This extravasation was clearly the immediate cause of her death, little as it might have been expected, on account of the daily profuse discharge, to which she had for so many years been subject.

It had often been remarked, that, although this patient was become much paler than she had formerly been, she was not comparatively thin in her person; and many who visited her could hardly be convinced, that she laboured under any dangerous disease.

All the contents of the cavity of the abdomen appeared to be in a perfectly healthy state, except the uterus, which was enlarged to about the size of that of a woman in the

fifth month of pregnancy. This part being the principal object of our examination, great attention was paid to it, and the following morbid changes were observed.

On the external surface were three or four protuberances, which, to the eye and touch, seemed like distinct abscesses; but, on cutting into the most prominent of these, it proved to be nothing but a swell or knob, projecting from the uterus, without any cavity. Neither the Fallopian tubes, nor the ovaria were diseased, or in any way affected.

On laying open the uterus, a large, thick, and firm, substance was found, springing from its fundus, and the whole of its posterior surface, as if it were an elongation of the substance of the uterus.

The tumour was detached from the anterior part of the uterus, on the left side; but on the right, it adhered almost wholly, till it arrived near the cervix. Yet the line of adhesion remained so distinct, as to shew that it was not original. On the surface of the tumour were two or three papillæ of different sizes, though they were all small. But the extremity, from which the excrescences,

which had been removed, had grown, terminated abruptly, just within the os uteri.

Though the ligature had in most of the later operations been fixed close to the lower root, or adhesion on the right side, it could not have been carried higher on the left; of course, a considerable portion of this substance remained untouched after every operation. In none of the instances were there any such symptoms, as indicated injury to the uterus, when the ligature was passed; though, when it was first drawn tight, the patient complained of some uneasiness about the navel.

The substance of the uterus was rather of a firmer texture than ordinary, and near the fundus it was several times thicker than usual, gradually becoming thinner as it approached the os uteri; which, having been so much, and so long distended, was nearly obliterated; the cavity of the uterus being uniform with that of the vagina, as always happens when a child is passing through the os uteri, at the time of birth.

With regard to the practical advantages to be derived from the foregoing history, it

is to be lamented, that we have not yet acquired any accurate account of the symptoms, which attend the commencement of a polypus. In this case, those which occurred before there was any suspicion of a polypus, are plainly described, and it is not improbable but that this is the common process. If this be confirmed by future observation, and were generally known, some errors in practice, and particularly in forming a prognosis, might be avoided.

There is another practical remark to be made on this case. A single polypus, growing in the cavity of the uterus by a small pedicle, and projecting into the vagina, may be completely and readily taken away by a ligature, and the uterus left as capable of performing its proper functions, as if no such thing had ever existed. Such the polypus seemed to be in this case, when it was first discovered, yet the event was different. It may then be asked, whether it is possible to tell, by any circumstances, when a polypus is of an innocuous kind, or when future mischief is to be apprehended? To this it may be answered, that the most favourable kind

is that which is of a pyramidal form, with a smooth surface, and a small pedicle. The most disturbing symptoms should also cease, when the polypus has passed into the vagina. But when the form is irregular, the surface ragged, and the pedicle thick, something is always to be feared; and when, after the removal of the first polypus, there is a succession of them, there is great reason to dread some organic disease in the uterus. In practice, however, it will, perhaps, be always justifiable to use our endeavours to extirpate every kind of excrescence of this sort. But there is another kind of excrescence with which we cannot interfere, without increasing the misery of the patient, and eventually shortening her life; that is, when a large cauliflower excrescence springs from the os or cervix uteri, with which it is so incorporated, that it is not possible to say, where the original part ends, and where disease begins.

There are wanting many distinctions of the various diseases the uterus is liable to, which, if not curable, are all classed under the general term, 'cancer.' Yet, cancer

seems a specific disease, of which the definitions hitherto given are very imperfect; and resembling diseases may require very different modes of treatment. The disease just described cannot properly be called cancer, though, if the patient had not been carried off by the extravasation of blood in the brain, it would have been, in all probability, equally fatal in its termination. Our knowledge of uterine diseases is certainly yet in its infancy; but from the general spirit of medical enquiry now prevalent, and from the abilities of those who apply themselves to this branch of the profession, there is room to hope, that the means of preventing many afflicting evils to the female sex may be discovered.

XXVI. *On the Cauliflower Excrescence from the Os Uteri.* By JOHN CLARKE, M. D.
Read July 4, 1809.

THE object of the present communication is to give some account of a disease not hitherto described, as far as I know, by any writer on the diseases of the female organs of generation, or in any book on morbid anatomy, though it is far from being uncommon. From its external form and structure in the living body, I have for many years been accustomed to describe it, in my lectures, under the name of the cauliflower excrescence of the os uteri, meaning to distinguish it from other diseases of structure of this part of the body, but especially from cancer, with which disease it has generally been confounded.

Having been for many years much consulted about the diseases of the female sex, I have been led to observe, that there is a great variety in the symptoms of diseases, which pass under the common name of

cancer. On accurately investigating, by examinations in the living body, the structure of different diseased parts, and connecting this with the variety in their symptoms; and particularly observing in the disease, which is the subject of this Paper, the absence of many symptoms which characterise cancer, and some other diseases of the uterus, I consider myself justified in giving to it a new name, which is in some degree descriptive of its structure.

It appears to me to be of great importance to distinguish, by different names, diseases which have some symptoms in common; otherwise a confusion in name will lead to confusion in practice, and to the use of the same remedies in disorders very different from one another. If in some cases advantage has been received by the patient, in others, much mischief has been done. Error has been propagated, and improvement in practice could not reasonably be expected.

I cannot omit this occasion of observing, that the treatment of diseases of the uterus, upon the mere description of symptoms

given by a patient, without any examination of the parts, or upon the examination and representation of persons not conversant with the healthy, or diseased structure of them, is not likely to be productive of advantage to the patient, or to add to the stock of knowledge heretofore acquired. No person should prescribe for these diseases without examining himself, and every medical man ought to be competent to make such an examination, otherwise he will be likely to do much mischief.

Having very frequently met with the cauliflower excrescence of the os uteri, I was much surprised, that I could find no specimen of it in any collection of anatomical preparations. I sought for it in vain in the collection of the late Dr. William Hunter. There is no specimen of it in the collection made by Mr. John Hunter, now in the possession of the College of Surgeons; and in all my inquiries, among those who had the best opportunities of finding it in the dead body, I have never been able to procure a specimen, which I could add to my private collection, for the purpose of exhibiting it

in my lectures. The reason of this will be satisfactorily explained by two cases, which will be related in this paper.

The cauliflower excrescence arises always from some part of the os uteri. As several of the early symptoms are not very distressing to the patient, the tumour in the beginning is rarely the subject of medical attention; the first changes of structure have therefore not been observed. I do not recollect that I have ever met with a case, in which the size of the tumour was less than that of a blackbird's egg. At this period it makes an irregular projection, and has a base as broad as any other part of it, attached to some part of the os uteri. The surface has a granulated feel; considerable pressure, or handling it, does not occasion any sense of pain. The remainder of the os uteri will, at this period, be found to have no sensible alteration of structure. By degrees, more and more of the circle of the os uteri, and the external part of the cervix uteri, become affected with the same morbid alteration of structure, till at length the whole is involved in the disease.

The growth is in some cases slow, but in others rapid, so that, in the course of nine months, it will sometimes entirely fill up the cavity of the pelvis, and block up the entrance of the vagina.*

* I learned this fact from the following case. I was consulted by a young woman, about twenty-six years of age, who was suffering under a profuse uterine discharge, the appearance of which led me to believe, that it proceeded from this disease. I was confirmed in this opinion, by finding the whole pelvis filled with a cauliflower excrescence, so large, as to impede the free passage of the fæces and urine. She appeared to be sinking fast under the quantity of the discharge. No statement was made to me of the probability of her being pregnant.

As she did not reside in London, I saw her only a few times. About six weeks after my first visit to her, she was suddenly seized with pain in the abdomen, which increasing in violence, a medical man in the village where she lived was sent for. Upon making an examination, he discovered a large tumour projecting from the orifice of the vagina. Having left the room for a short time, he was hastily recalled, and on returning he found, that the head of a child protruded. Soon after, the child was born, and in a short time the placenta came away. No unusual discharge following, it was supposed by those present, that no disease existed. However, in a short time, when the puerperal discharge had lessened, all the former symptoms returned, and I was again desired to visit her. On examination, I found the excrescence filling up the pelvis as before

As the bulk of the tumour increases, the granulated structure becomes more evident, and is found to resemble very much the structure of a cauliflower, when it begins to run to seed. In most cases it is of a brittle consistence, so that small parts of it will come away, if it be touched too rudely, and such pieces generally appear very white. Sometimes, though no violence has been used, small portions of a white substance come away with the urine of the patient, and in the discharge from the vagina.

When the tumour has arrived at a size greater than that of the os uteri, it spreads

The discharge from it became daily more profuse, and in six weeks after delivery she died, in a state of the greatest emaciation.

From the history of this case, I am led to believe, that the disease must have been formed after conception, both because she had no symptoms of disease nine months before her delivery, and because in the state of the os uteri, attendant on this disease, it is not likely that conception should take place.

It appears that, when she fell into labour, the tumour was expelled, before the os uteri could be dilated for the passage of the child's head, and before it could pass through the pelvis. As soon as it was born, the tumour receded into the vagina, and no farther examination was made at that time.

very much, and as the base is the smallest part of the tumour, persons, not conversant with the disease, have often mistaken it for polypus. A little attention, however, to the feel of the tumour, and the breadth of its base, will be sufficient to distinguish them.

In the very early state of the cauliflower excrescence, a discharge from the vagina takes place like *fluor albus*. It very soon becomes thin and watery, and is sometimes tinged with blood. In most cases, upon coming away, it is apparently as thin and transparent as pure water ; but the linen, on which it is received, when dry becomes stiff, as if it had been starched. The quantity of the discharge, when the excrescence is large, will sometimes be sufficient to wet thoroughly ten or twelve napkins in a day. Now and then a discharge of pure blood occurs. When this ceases, the discharge of a thin transparent fluid reappears. An offensive odour generally accompanies the discharge, which is greatest, when there has lately been an evacuation of pure blood, or of the catamenia.

Through the whole course of the disease, I have never found, in any instance, any

appearance of pus in the fluid discharged from the vagina. Sometimes, however, mucus will be seen in it.

The catamenia are not affected in an early state of this disease. This discharge is, however, generally more abundant than in health, and the period is apt to last longer. With the catamenial secretion blood is very often effused. When the constitution becomes much weakened, menstruation is less regular, and, in the last stages of the disease, it observes no regular period.

Patients, labouring under this disorder, are variously affected with regard to pain. In the commencement none is felt, but during its progress pain is in some cases experienced. Generally, in the advanced stage, the patient feels pain in the back, and in the direction of the round ligaments of the uterus: The pain is not described to be lancinating, as in cancer, and is without any sensible aggravation by paroxysms; but on the whole, it is most felt, after the patient has been long in a perpendicular attitude.

The disease attacks indiscriminately women of all ages. I have lately met with a case,

in which it proved fatal before the age of twenty-five years. The patient is destroyed by the debility occasioned by the profuse discharge; and, in the course of the disease, she always becomes extremely emaciated. That this depends entirely on the discharge, will appear from the consequences of the treatment pursued in a case hereafter described. I have never met with an instance, in which the disease did not terminate fatally. As it seemed quite evident, that the diminution of bodily strength in this disease is owing to the discharge, I had for many years wished for an opportunity of removing the excrescence by a ligature, to ascertain whether relief might be obtained by this operation, believing, from the insensibility of the tumour, that it would not increase the danger of the patient. At length, a favourable case presented itself about three years ago. At that time I was called upon to visit a patient, who was supposed to have a polypus of the uterus. She had been very much weakened by a continual discharge from the vagina before I saw her, and was apparently sinking very fast. On examination, I discovered that

there was a cauliflower excrescence of the size of an orange, growing from about one third of the circle of the os uteri. The uterus above the tumour was enlarged.

It was agreed in a consultation, in a case so hopeless, to attempt the extirpation of the tumour by a ligature, which might be instantly loosened, if any pain or other inconvenience should be produced by it. I accordingly passed a ligature round the base of it, as near to the os uteri as possible. The patient was not sensible of any pain upon tightening the threads. I therefore left her, with directions to send for me, if she should be in pain; but I heard nothing from her. On the following day, finding the threads slackened, I tightened them. Still no pain was occasioned, but I found that the watery discharge had ceased altogether, and that a thicker had succeeded, which was small in quantity, and very offensive. On the next day the ligature came away, proving that the tumour was divided at its base. I immediately examined the cavity of the vagina, but found no tumour there, and from the most strict enquiry ascertained, that nothing had passed

from the vagina. I again examined the vagina with great accuracy, and found a small portion of a white, glary substance, which might have been contained in half of the shell of a pigeon's egg. From this time she had no more watery discharge, and in a few weeks, from having been much emaciated, she regained a considerable degree of plumpness. After this, however, a purulent discharge occurred from the vagina. I saw her again, and found that the lower portion of the uterus was become diseased. The os uteri was irregular and knotted, and the interstices of the knobs were in a state of ulceration. To this state, symptoms of irritation succeeded, and she died. The body was not examined after death.

I have since had an opportunity of inspecting, after death, the uterus of a patient affected with the same disease, whom I had attended for many months. A few days before her death, the cauliflower excrescence was examined by my brother, Mr. Clarke, and it was then as large as an orange. She had suffered very much from a profuse discharge of watery fluid, and towards the conclusion

of her life a symptom occurred, which I never before met with, a loss of sight, without any apparent alteration in the structure of the eye. On examining the os uteri, the day after her death, no tumour appeared; and it was clearly ascertained, that nothing solid had come away during her life. The body and fundus of the uterus were sound. From about half of the os uteri hung a slimy, flaccid, white, and very tender substance, resembling the foetal portion of the placenta of a graminivorous animal. It was desirable to ascertain, whether it could be artificially filled by injection, so as to restore its former size. The attempt was accordingly made; but it failed, from the injection escaping from every part.

On considering and comparing these two cases, it appears to me, that the application of a ligature in one case, and the death of the patient in the other, produced the same effect, that is, the supplies were cut off, and the vessels, which had before contained the fluids, collapsed and almost disappeared. If all cases of cauliflower excrescence are of the same structure, which, from the similarity of

the discharge, there is reason to believe, the disease consists in the growth of a præternatural substance from the os uteri, which, when touched, feels like a solid substance, but when emptied of its contents collapses, so as to occupy but a small space.*

In this Paper I have taken no notice of the symptoms arising from mechanical pressure, because they are common to this disease, and all other tumours of the same magnitude, occupying the same situation.

Respecting the treatment of this disease, I can offer, at present, little satisfactory information. The disease being described, and distinguished from others, is something gained. All stimulating substances, either in diet, or medicine, seem to aggravate it, by increasing the discharge, and no astrin-

* I consider that the circumstances which took place in the case, where the ligature was applied, and the appearances on the inspection of the parts in the dead body, afford a satisfactory explanation, why this disease is not found, as a tumour, in collections of morbid anatomy, and why it has not been described by any writer upon that subject. No account of it is to be found in the valuable work of Dr. Baillie upon Morbid Anatomy.

gents internally given, which I have tried, appear to lessen it.

The only means, from which I have seen any benefit derived, is the injecting into the vagina, three times a day, a strong decoction of cortex granati, or of cortex quercus, in which alum is dissolved, in the proportion of eight or ten grains to every ounce of it. This has the double effect of lessening the quantity of the discharge, and rendering it less offensive.

It is scarcely necessary to add, that the use of anodynes must be resorted to for the mitigation of pain, and that the occasional symptoms of suppression of urine, and costiveness, are to be relieved, by the use of a catheter, and mild laxatives.

POSTSCRIPT.

Read January 8th, 1811.

SINCE the foregoing Paper was laid before the Society, a case of cauliflower excrescence,

connected with pregnancy, has occurred in the practice of my brother, Mr. Clarke.

Margaret Pole, aged thirty-two, the mother of eight children, discovered that she was pregnant, in the beginning of the year 1810. From the commencement to the termination of her pregnancy, she had a constant discharge from the vagina, generally watery, but sometimes bloody, by which she was extremely debilitated. On the 1st of July she was taken with labour pains. The practitioner, who was first called to her, finding a large tumour in the vagina, in his opinion resembling the placenta, and the discharge being at this time very profuse, my brother was called to his assistance. When he arrived, he found the patient perpetually vomiting, and having a pulse, quick, frequent, and weak. On examining the tumour, he ascertained its structure to be that of the cauliflower excrescence. At this time, the os uteri was not much dilated, but the discharge of watery fluid tinged with blood was very great.

Early in the morning of the 3d of July, she was delivered, without the assistance of

art, of a putrid child, and the placenta followed in the usual time.

On the 4th and 5th of July, a great quantity of discoloured watery fluid came away; her belly became tender upon pressure, and much swollen. On the 6th, aphthæ appeared on the palate, tongue, and inside of the cheeks. The vomiting had never ceased; she became gradually weaker, and died on the 7th of July.

On examining the state of the parts after death, my brother found, by slitting up the vagina, that the tumour had disappeared, though in the patient's lifetime it had filled nearly the whole of its cavity. In its place was a pulpy, unresisting substance, very little firmer than mucus.

An attempt was made to fill the tumour, from the vessels of the uterus, with fine injection, but the injected fluid always escaped from the vessels of the pulpy mass. The vessels, of which this species of tumour appears to consist, are of a very tender texture, and soon become too putrid to bear the force necessary to be employed, in attempting to fill them with injection.

From the resemblance between this case, and one described in the Paper to which this is annexed, there is every reason to believe, that the disease must have begun, in this case also, after the commencement of pregnancy.

XXVII. *On the Effects of large Doses of mild vegetable Alkali, or Potassa carbonata, in Gravel, with Remarks on its Administration, particularly on the Advantage of combining it with Opium; together with some general Observations on the Powers of Opium.* By GILBERT BLANE, M. D. F. R. S. L. and E. and Physician to the Prince of Wales. Read November 1, 1808.

IN the year 1796, I read a Paper to this Society, which has since been printed in its Transactions, on the effects of pure alkali and lime water in several disorders. I did not then touch upon their effects on gravel or calculus; but it was incidently remarked by Dr. George Fordyce, that, in his opinion, the mild alkali was equally effectual in such complaints, as the pure or caustic.

Having also heard the late Dr. Ingenhouzs relate the great benefit, which he himself had received from the aqua mephitica alkalina, the name by which the vegetable alkali, surcharged with carbonic acid, was generally

known at that time, and having read an excellent treatise on this subject by Dr. Falconer of Bath,* I determined, in my future practice in such cases, to give the mild vegetable alkali a fair trial.

The alkali, in its ordinary state of impregnation with carbonic acid, is too nauseous and acrid to be given in a sufficient dose, and the super-saturated form of it, above mentioned, cannot be employed but in a limited degree, on account of its high price, and its not being every where and at all times procurable. But, as the only effect of the uncombined carbonic acid appears to consist in rendering the alkali acceptable to the palate and stomach, it occurred to me, that the same object might be attained, by neutralizing a part of it with lemon juice or vinegar, and giving the whole in a state of effervescence. The usual method I have followed for adults has been to dissolve two scruples or a drachm in two ounces of water, to sweeten this solution with two drachms of honey, and to direct this to be taken, with half an

* An Account of the Efficacy of the Aqua Mephitica Alkalina in Calculous Disorders; by William Falconer, M. D. F. R. S. 3d. edition. London, 1799.

ounce of lemon juice, three times a day. I preferred honey to sugar, on account of the mucilage it contains, and because I heard the late Sir John Pringle say, that he believed it to be a good remedy in calculous affections. I have also found this quantity of honey sufficiently laxative to supersede the use of medicine for that purpose, and which the opium might otherwise render necessary.

It may be objected, that the virtue of a large proportion of the alkali is destroyed by this method of administering it. Of this objection I was well aware, but was led to disregard it from the following considerations. 1st, About this time, a person under my care, taking this alkali neutralized with lemon juice, in the form of the common saline draught, was, from curiosity and amusement, in the habit of trying the urine by the test of paper stained with litmus, and found that, under the use of this medicine, the urine came to lose its power of reddening the paper, in the same manner as happens under a course of alkali. It would appear, therefore, that in the progress of the circulation, by virtue of some of the chemical changes arising in the processes of secretion

and assimilation, this compound is decomposed, so as to allow the alkali to operate as if it had been swallowed separately. 2ndly, Admitting that one third or even one half of the alkali were to be deprived of its medicinal quality, the portion which remains unneutralized is greater than the palate or stomach could bear, in a separate state. Lastly, I found from experience, that the actual effects were as great, as could have been expected from the whole alkali, without the addition of an acid. It may farther be stated, as a recommendation of the practice of administering the alkali in combination with the carbonic and citric acids, that the morbid affections incident to a long use of the alkalis alone are thereby prevented.

It was found advisable to adopt certain modifications and additions to this medicine, according to the variety of the accompanying symptoms. It happens not unfrequently, for instance, on the first attack, that the sharp angular concretions produce symptoms of acute nephritis, in which case the usual quantity of uncombined alkali should either be less, or omitted, till the inflammation

shall have been subdued by bleeding, the addition of nitre, and other parts of the antiphlogistic treatment.

Where there is great pain and irritation, without the suspicion of inflammation, I found opium not only admissible, but highly advisable; inasmuch, as it not only alleviated the pain, but, if given for a considerable time, contributed materially to expedite and complete the cure. It is, indeed, this fact that has chiefly induced me to lay this Paper before the Society. I could not help being much struck with it, but was the less surprised on reflecting, how analogous it is to what I had observed, with respect to the effects of opium in other cases of irritation. I will also confess, that I was farther induced to adopt this practice, from finding that a medicine sold as a secret, evidently consisting of alkali conjoined with opium, had in some cases of gravel been more effectual, than the alkali directed by myself without this addition. I have, therefore, for several years been in the habit of adding from five to ten drops of laudanum to each of the doses of the alkali, and am fully satisfied,

that it not only prevents the distress arising from irritation, and facilitates the discharge of calculi, by relaxing the spasms of the ureters, but that it renders the cure more expeditious, more certain, and more permanent.

I have elsewhere remarked,* that, in ill conditioned ulcers, in the West Indies, opium was found superior to all other internal medicines for producing a disposition to heal. Under the free use of it, such ulcers would in place of a sanious discharge produce a healthy pus, succeeded by granulations and cicatrization. Opium appears to do this by suspending irritation, and perhaps by promoting absorption. Nor is this fact more wonderful and unaccountable, than the other changes produced in animal fluids, by the contact and action of the living solid parts in the functions of assimilation and secretion,† whether in a state of health or

* Observations on the Diseases of Seamen, p. 520, 3d edition.

† This subject has since been successfully illustrated in some well instituted experiments made by Mr. Brodie, a Member of this Society, in the Croonian Lecture of 1810, and printed in the Phil. Trans. of 1811.

disease, to which there is nothing analogous in the habitudes of dead matter, unless the late discoveries of the chemical powers of electricity can be reckoned such. I afterwards, on these grounds, and in consequence of a case* related to me by Dr. Nooth,

* This case is as follows. About thirty years ago, a young medical man was affected with a phagedenic bubo, and went into the country under the conviction that it would prove fatal, as he had observed, in the course of his education, this to be the termination of similar cases. In order to allay his sufferings of mind and body, he determined to make a free use of opium, and raised the dose far above what in common practice was considered as advisable, or even safe, setting no limits to it but the attainment of ease. The consequence was that the ulcer began to suppurate kindly, and finally healed. Dr. Nooth, to whom this case was known, went soon after to America, as Physician to the Army there, and took pains to communicate the knowledge of this to the medical officers of the army. A physician, belonging to the Hessian troops, who then served in America, conceived from misapprehension, that opium was a remedy for the venereal disease in all its forms, and very hastily, and most reprehensibly, published a small tract to this effect. The novelty of the practice, and confident tone of his work, procured it a wide circulation and some credit, insomuch, that, when I returned to England after the war, I found that some of the most eminent practitioners had been making trial of it in virulent gonorrhœa, and chancres, either in their

made trial of a free use of opium in phagedenic buboes, while I was Physician to St. Thomas's Hospital. This was attended with great success; and I find in my notes one case in particular, which after being in another Hospital for six months, and dismissed as incurable, was cured at St. Thomas's by this practice. The largest quantity the patient took daily was two grains in the morning, as many in the middle of the day, and five at bed time; but I have seen it carried farther. Mercury was found to aggravate the symptoms; and I believe that the chief cause of these untoward cases is the excessive use of it, and probably the less frequent occurrence of such cases of late years

private or hospital practice. The fallacy was soon detected; but the remedy shared the fate of many other excellent medicines. Not having been found good for every thing, it was condemned as good for nothing, and discarded, so that the practice was neglected, or but little attended to, in those cases to which it is really adapted, and for which it had been originally intended.

The employment of opium, in venereal ulcers, is very accurately stated in a pamphlet published by Mr. Grant, entitled 'Observations on the Use of Opium, in removing Symptoms supposed to be owing to Morbid Irritability.' London, 1785.

is owing to the more moderate and judicious use of mercury.

I need not remark to men, who are in the habit of reflecting on the principles of the animal œconomy, and the operation of medicines, that all the healing processes are ultimately and essentially the work of nature, and that the means employed by art consist merely in enabling nature to perform these processes, or in removing such obstacles as impede her operations, and that of these obstacles one of the chief is irritation. Upon this principle, it can as readily be conceived, how the morbid action generating gravel may be encreased by the irritation of that gravel, as that a sanious discharge should be kept up and encreased by its own acrimony. It may also be remarked, that the urinary organs are more liable to nervous influence, and consent of parts, than most others, as is exemplified in the sympathy of the stomach from calculous irritation, and the great quantity of pale urine secreted in hysterical and other nervous affections. It is not so evident, however, in point of reasoning, how the cure of gravel by this practice should be

more permanent. It might indeed be alleged, that a medicine affecting the action of those solid parts, which are the seat of sensibility and irritability, is more likely to have permanent effects, than one which merely produces chemical changes on the fluids. But as the fact in question was ascertained by experience, without having been suggested by plausible speculations, I wish to rest it on the former. That this is the only legitimate criterion of practical reasoning, and that chemical experiments out of the body are very fallacious, may be illustrated by another fact belonging to this subject. A gentleman, subject to frequent fits of gravel, was in the habit of making experiments on the small concretions which he passed. He found that soda dissolved these, but that potash did not; nevertheless, he experienced sensible relief, and even temporary cure, from the use of the latter, but no benefit from the former.* As far as I can judge of

* A remarkable instance of the inefficacy of soda, though given in large quantity, is related in Mr. Home's *Observations on Mr. Brande's Paper on the Structure of Calculi*, inserted in the *Philosophical Transactions* for 1808.

the comparative powers of the two alkalis, I should greatly prefer the potash to the soda, as a remedy for the cases in question. One reason of this may perhaps be, that soda is an element of the animal fluids, as it enters largely into the composition of the bile, so that it is more likely to be arrested in the course of circulation, and diverted from the urinary organs. I may observe by the way, that the patient above-mentioned has for a series of years been subject to frequent relapses, but that I never could prevail on him to use opium, as he has, like many others, an insurmountable objection to this drug.

I hope what I have said in favour of opium will not be considered, as giving countenance to that indiscriminate use of it in various internal complaints, which has of late prevailed in medical practice, in consequence of some hypothetical doctrines that have been propagated. Let it not be forgotten, that the maxim, that the best things are most liable to abuse, is peculiarly applicable to medicines. Its beneficial effects are limited to cases, in which there is spasm or irritation in some form or other, either manifest or

obscure. I have found it uniformly hurtful, where there is either inflammation or simple debility, and I am convinced, that it never proves cordial and exhilarating, but where there is some spasm visible or latent. It has a striking effect in those cases or constitutions, where chilliness, and languid circulation, are the predominant symptoms; and I take this occasion of mentioning the very great advantage of using it in intermittent fevers, particularly those which obstinately resist the bark. After the usual evacuations in those cases, if the patient is put to bed a few hours before the expected fit, and takes twenty or thirty drops of laudanum, keeping himself warm by hot drink and bed clothes, the paroxysm will be either prevented or mitigated, and the disease may be cured entirely by this remedy alone; or, if there is any doubt of it, the bark may be given at the same time, so that these two remedies may be considered as auxiliaries to each other, and there is nothing incompatible in their combined use in all such cases.

Neither is it foreign to the present subject to observe, that opium has a remarkable power in mitigating the effects of poisons.

Dr. Reynolds * found, that the danger arising from the internal use of the cerussa acetata is obviated, by conjoining it with a small quantity of opium. I have experienced the like good effect from this combination; and I am assured by a practitioner of medicine, on whose veracity I can depend, that he gave in the course of forty-eight hours, in a case of severe hæmoptysis, three drachms of the cerussa acetata, diluted with a large quantity of water, and twenty grains of opium, with complete success, and without any inconvenience either at the time or afterwards. I have employed it with the same intention, and with the like good effect, in obviating the virulent powers of arsenic; and it is fortunate, with respect to intermittent fever, that the virtues of both these concur, having been found separately, as well as together, powerful remedies in that disease. In illustration of this, I beg to give the outlines of a case, which occurred to me a few years ago. In the year 1800, there was a camp at Swinley, near Windsor, in which an intermittent fever appeared, and it was observed

* Medical Transactions of the College of Physicians, vol. iii. p. 99.

that those only were affected with it, who had served in the campaign of North Holland, in the autumn of the preceding year, affording a curious and well ascertained exemplification of the reality of latent predispositions. One of the officers, affected with a tertian intermittent, came to town to place himself under my care. Having a pain in his right side, which was suspected to have arisen from a chronic affection of the liver contracted in a tropical climate, where he had served a few years before, I was desirous of curing him without the bark. After the usual evacuations, therefore, he took opium before the fit, in the manner already described, and also every night at bed-time, by which the paroxysms were mitigated, but not prevented, at the end of the first week. I then directed ten drops of Fowler's solution* of arsenic to be given every four hours, after which he never had a rigor, but only an uneasy jactitation at the usual time of the paroxysms; and this disappeared upon raising the dose gradually to fifteen drops. This dose was

* A preparation of this mineral of the same strength has been inserted in the edition of the London Pharmacopœia of 1808.

continued for a few days, and the disease was entirely removed, without the least inconvenience having been felt from the remedies. As the dose of arsenic here administered was considerably above what is regarded as advisable, or even safe, I have no hesitation in ascribing this to the opium, particularly as I have observed the same effect in other cases.

It seems worth enquiring, whether the deleterious effects of vegetable and animal, as well as the mineral, poisons, might not be prevented by opium. We know that the ancient compositions called alexipharmaca and theriaca, in which opium was the most important ingredient, derived their appellations from their real or supposed powers of counteracting poisons; and it would be difficult to say, upon what grounds the moderns have pronounced so hardily, that the confidence of the ancients in these compositions was founded in credulity and superstition. If I had the misfortune to be bit by a mad dog, I should place much more reliance on due doses of some of the officinal opiates, taken habitually, till the predisposition might

reasonably be supposed to be obliterated, than on any thing that the moderns have suggested as an antidote to this poison, being seriously of opinion, that opium affords a very likely means of counteraction, particularly if combined with arsenic, which has been proposed as a remedy in this disorder by Dr. J. Hunter, in a Paper inserted in the first volume of the Transactions of this Society. We have seen how well these two medicines accord in the cure of agues; and it may be remarked, that the remedies for ague partake, in their application and operation, of the nature of prophylactic means; for they are administered, during the absence of the paroxysms, with a view to prevention, in a complaint of which the remote cause is a morbid poison.

A few other practical remarks may be made, before dismissing the consideration of this interesting article of the materia medica. One is, that I have not seen it manifest any of its peculiar properties, whether local or general, that is, any narcotic, anodyne, antispasmodice, or exhilarating effects, except when brought into contact with some portion

of the alimentary canal. The next is, that in those constitutions, in which it ordinarily produces nausea, headach, febrile heat, and other distressing sensations, it has not these effects, when such constitutions labour under severe spasm and irritation, which it is then equally effectual in removing, as in any other constitution. Lastly, the effect of opium in diabetes is highly illustrative of the principle, which it has been one of the chief objects of this communication to establish, namely, that the removal of irritation produces not merely a palliative and temporary, but a radical and permanent effect. Only one case of this disease has occurred to me, since I became more fully acquainted with the powers of opium. It was in a female, who had laboured under the complaint for fourteen months, and, under the use of ten drops of vinous tincture of opium thrice a day, recovered entirely in three weeks, and she has remained so now a year. Some other remedies usually directed in this complaint were taken at the same time, but their want of success, in so many other cases, leaves little or no doubt, that the striking

benefit, derived from the treatment in this case, was owing to the opium. The diet purely animal, which I enjoined, had probably the next greatest share in the cure.

In the title of this paper, I have made use of the term, *gravel*, meaning to distinguish the disease so called from the stone. The gravel properly so called, that is, the recent concretions, generally accompanied at their first formation with nephritic pains, has been found to consist of uric acid, except in a very few cases, in which it consists of * oxalate of lime; whereas most of the large concretions, which have been forming for a length of time in the bladder, are found to consist, besides, of a variety of other ingredients; and some of them contain no oxalate of lime. The discoveries on this subject do great honour to the science of this age, and are of great utility in guiding our opinions and practice, in the treatment of the complaints under consideration. The concretions of uric acid most frequently form the

* See Mr. Brande's Letter to Mr. Home on the Structure of Calculi, in the Philosophical Transactions of 1808.

nucleus of stones; and it has been computed, that a fourth part of stones, found in the bladder, consist of uric acid, though Mr. Brande thinks this computation too high. The great majority of stones are found to contain, besides this acid, ammonia, magnesia, silica, lime, the phosphoric and oxalic acids, in various combinations and proportions. A few have been found without any uric acid. In consequence of these laborious and successful researches, we are enabled to understand, why alkaline bodies are not in all cases equally effectual in curing or relieving calculous complaints. This had so far disparaged their character, as to produce a general diffidence of their efficacy in any case whatever. It is, therefore, highly important to mankind, that the extent of this efficacy should be ascertained, in order that practitioners and patients may neither be too sanguine, nor too despondent, with regard to the benefit to be expected from them. And I must here again remark, that, whatever deference may be due to the lights thrown upon this subject by chemical science, the effects of remedies on the living body are not

to be decided exclusively on this principle. Notwithstanding its being found, that the greater part of the substances, of which stones consist, are incapable of being acted upon by the fixed alkalis, I have certainly seen the most sensible relief produced by them, especially when combined with opium, in all varieties of this disorder. I firmly believe, that these remedies do in most cases of stone afford more or less relief; and though there may be no proof of their having dissolved a stone, properly so called, yet they frequently do what is equivalent; for by preventing fresh concretions, which from their crystalline form are extremely sharp, the stone becomes so smooth, as to lead to an opinion that it has actually been dissolved. This was particularly remarkable in the case of Lord Walpole, given by Dr. Whytt about the time when this medicine was first introduced into regular practice. This patient was relieved from the sufferings of the stone for several years before he died, which was at the age of eighty, although the stone was found in the bladder after death. Though experience seems here at variance with deductions purely

chemical, it is in perfect conformity with the reasonings employed in the former part of this Paper.

It seems evident, that all the substances found in the composition of stone, except the uric acid, of which there is a certain proportion in the most healthy urine, are the creatures of * morbid irritation. In almost every instance, the concretions of uric acid form the nucleus of stones, which would not be the case, if the other substances were produced, independently of irritation from the stone itself. The specific effect of this irritation, as the stone advances in size, is to produce, by exciting morbid secretion, the various other compounds which have been enumerated; and there seems to be a particular period of its growth, at which it produces one compound rather than another, as appears by the strata of urinary stones. The several strata may be considered as expressions of this fluctuating action, so as to be registers, as it were, of the duration and succession of these actions, in producing the several species

* See page 343, where the effect of nervous influence on secretion is adverted to.

of matter composing stratified stones. The stratum of oxalate of lime, which gives a mulberry appearance to the stone, is seldom formed till the stone has attained a considerable size, being rarely found in the central parts of these concretions.* This being the case, whatever tends to obviate irritation, will likewise tend to prevent the generation of calculous matter of every description except uric acid. Both the medicines I have mentioned possess the property of diminishing irritation; for not only has opium this effect, but also the alkali, as I have endeavoured to prove in a Paper before alluded to, which I read to this Society in the year 1796; and the aqua mephitica alkalina has been found to remove † bloody urine and strangury, though not proceeding from gravel or stone.

* It makes no difference, either in the reasoning here employed, or in the practice proposed, whether the constituents of stone are derived from the urine, as secreted in the kidneys, or, as is alleged by Dr. Austin, from the surface of the bladder.—See a Treatise on the Origin and Component Parts of the Stone in the Urine of the Bladder. London 1791.

† See Dr. Falconer's Cases before quoted.

XXVIII. *A Case of extensive Gangrene of the cellular Membrane, between the Muscles and Skin of the Neck and Chest.* By

WILLIAM CHARLES WELLS, M. D. &c.

Read May 2, 18c9.

M_RS. G., the wife of an inferior tradesman in London, had always from her birth been somewhat feeble, but had never been afflicted with any considerable disease, prior to that which I am about to describe. She was married when about twenty-two years old, and, twelve months after, brought forth a healthy child. She soon recovered her ordinary state of health, and was sufficiently strong to suckle her infant, which thrived under her care. About two months after her delivery, she began to feel a pain in her bosom, and collar-bones, and to be often chilly. These ailments were attributed to her staying much in a room, the door and windows of which were frequently kept open, though the weather was cold, to prevent the

chimney from smoking. About the same time also her milk began to be less abundant; but she still continued to suckle her child. She remained in this state about three weeks, at the end of which time a slight cough attacked her, and her left cheek began to be painful, red, and swollen. This disease of the cheek was at first thought to arise from a bad tooth, but as it increased quickly, an apothecary was sent for on the 20th of last March, about three days after the commencement of the swelling. The swelling and redness had now reached the left clavicle; but, as the system was very little disturbed, the apothecary conceived that those symptoms depended upon an inflammation of the parotid gland. Between the 20th and 25th, the disease spread over the whole front and sides of the neck and chest, and in the same interval her pulse became very frequent, and her breathing very laborious; her cough, however, was but little troublesome. I visited her for the first time on the evening of the 25th. The swelling of the left cheek, with which the external disease had commenced, was by this time much diminished,

and the cuticle there was falling off. The swelling of the neck was inconsiderable, as was that of the chest, except near the upper extremity of the sternum, where was an elevation of the skin crossing the sternum at right angles, four inches long, an inch and a half broad, and an inch high. This evidently contained a fluid, but the kind was not easily ascertained; for the fluid very readily yielded to pressure, and there was a feeling experienced, when the tumour was touched, similar to that given by parchment, or a dried urinary bladder. The apothecary had hence imagined the tumour to contain air; but the same feeling was perceivable in every part of the diseased skin below the tumour, and was most remarkable where the disease was most recent. When the diseased skin was pressed, the patient felt pain, but in no great degree: I pressed it, however, very gently. Its colour was a less bright red, than that of a phlegmon or erysepelas. A little above the left breast, a piece of skin, about half an inch in length, and a quarter of an inch in breadth, was smoother than natural, and of a brown colour, resembling somewhat an eschar

produced by caustic; but there was no vesicle upon any part of the skin. The disease of the skin terminated rather abruptly, and a finger could be insinuated a little way under its edge, which felt hard. This was the case at least at the lower part of the chest, where the experiment was made. Her pulse was a hundred and thirty-six in a minute, and not feeble; her tongue was moist, and covered with a smooth pellicle of a light brown or greyish colour. She swallowed with difficulty, and could not open her mouth sufficiently to allow me to examine upon what this depended. Her body, which had been before bound, was now loose, in consequence of her having lately taken some medicine to render it so; the matter discharged by stool was said to be of a dark colour, and of an highly offensive smell. The urine was said to be high-coloured, but sufficiently copious. She complained that a little wine, which she had lately taken, had heated her. I was told that she had been several times delirious at night: her mind, however, when I saw her, appeared to be altogether sound.

I visited her again on the 27th of March,

soon after mid-day. The redness and swelling had extended, since my former visit, over the upper part of the abdomen. The tumour on the upper part of the chest had also increased, and the skin which covered it had become soft, so that there was now no doubt of its contents being liquid. The pulse was a hundred and fifty, and feeble; the breathing was more laborious, and the inside of the lips was covered with aphthæ. She was still, however, free from delirium. No discharge by stool had taken place for nearly two days. She afterwards gradually became weaker, and died in the forenoon of the following day, her mind having remained to the last almost entirely undisturbed by delirium.

As I had never seen such a disease before, I applied for leave to inspect the dead body, which was granted with reluctance. The inspection took place about ten hours after death. The tumour over the sternum had been previously broken by some accident, and, from the report of the nurse, nearly a quart of a dark and highly foetid fluid had issued from it. The skin of the neck and chest had entirely lost its redness;

its colour now was a dirty white, except in a spot upon the left side, about two inches square, which was of a dark blue. When an incision was made through the skin of the thorax, a very foetid liquor of a dark-brown colour flowed out, the quantity of which, together with what was afterwards removed by sponges, was estimated to exceed a pint. Upon turning the skin aside, a most hideous sight presented itself, the whole cellular membrane, which covered the muscles upon the forepart and sides of the neck and chest, being discovered to be in a state of gangrene. But the muscles themselves, though immediately beneath the gangrenous membrane, and the glandular substance of the mammæ, which was nearly surrounded by it, seemed free from disease. Nothing extraordinary was found in the chest, except an ounce or two of a watery fluid in the left cavity, and a slight redness in the anterior portion of the pleura costalis. The great difficulty of breathing, therefore, under which the patient had laboured, probably arose from her suffering an increase of pain, when she attempted to use the muscles contiguous to the

external disease. In bringing together the divided portions of the skin of the chest, its texture, in several places, was found too weak to retain the thread, which was employed for this purpose. No part of the body was examined besides those which I have mentioned, chiefly by reason of the repugnance of the relations, one of whom was present during the inspection. But had I then thought of it, I should have endeavoured to ascertain, by what mechanism the foetid fluid had been prevented from entering the surrounding healthy cellular texture, while it seemed to flow freely through such parts of that texture as were diseased!

XXIX. *A Case of Erysepelas of the Face, Neck, and Chest, attended with uncommon Circumstances.* By JAMES WILSON, Esq. &c. Read July 4, 1809.

IN the autumn of 1802, I visited Mrs. L—k, the wife of a publican in the neighbourhood of the Strand. She was about thirty-three years of age, and the mother of four children, the youngest of whom, about three months old, she was then endeavouring to suckle at the right breast, the state of the other breast preventing her from applying the child to it. She had fair hair, was of a fair complexion, and had formerly been subject to scrofulous swellings of the absorbent glands of the neck, which, however, had never suppurated; nor had they for several years past given her any uneasiness, although some of them had always remained enlarged. She informed me, that she had never recovered her strength or appetite since her last lying in, and that she slept very little. Four days before I saw her, she had eaten at

noon part of a lobster, and had forced herself to swallow two or three raw oysters. She felt sick after this, but did not vomit, and on the evening of the same day, while suckling her infant in a situation which exposed her to a current of air, she suddenly felt a pain in the face, immediately below the left cheek bone. This soon increased, and the part felt sore when touched, but there was no perceptible swelling. The skin she said of the left side of her face, when she viewed it in a looking glass, was exactly of the colour of a damask rose. During the night, she had a violent headach, and was restless and feverish. Next morning, as she had been without any evacuation from the bowels for the three preceding days, she took some lenitive electuary, which produced three motions, and afforded her some relief. Finding, however, that she grew worse towards the evening, and that some slight shiverings had taken place, she sent for an apothecary. From him I learned, that, when he visited her, the redness extended over the whole of the left side of the face and neck, and that the parts affected by it had a puffy feel.

Under the supposition that this affection proceeded from a carious tooth, which had formerly given her pain, the tooth was drawn; but this, instead of relieving her, seemed to aggravate the symptoms. A saline draught was then given to her with five drops of laudanum every four hours. She passed a very uneasy night; and next morning there was so much swelling as to close completely the eyelids of the left side, and partially those of the right. The neck felt very stiff, and the redness had extended to the upper part of the chest, and seemed creeping towards the breast. Leeches were applied to the temples and cheeks, and warm fomentations and poultices to the whole of the affected surface. Only two leeches could be made to bite. In the course of the day she had a violent shivering, which lasted about a quarter of an hour; and shivering, though less violent, also took place three or four times during the night and next day. The redness next day was found to have extended over the left breast, and the secretion of milk in it, which hitherto had been copious, suddenly stopped. A fluid could now be felt

under the skin of the face and neck; several small vesications appeared on the surface of the skin, and the ensuing day a number of small holes, few of them exceeding in size a pin's head, were perceptible on the surface of the skin of the face and neck, discharging a thin fetid matter. Two or three small openings, discharging a similar fluid, were likewise seen in the inside of the cheek.

In this state I found her. Her pulse was one hundred and forty in a minute and very feeble; her tongue nearly covered with a brown fur; her thirst considerable, and very distressing. She complained also of great soreness in the diseased parts when touched, but not of acute pain. Upon using very gentle pressure, upwards of a pint of imperfectly formed pus oozed out of more than thirty small openings, most of them in the cheek, but some also in the neck. The skin of the chest and breast retained the impression of the finger, and for a time became pale, but soon resumed its former appearance, upon the pressure being removed.

The disease having the characteristic marks of erysepelas, and the matter formed extending

rapidly over a large surface, and passing freely from cell to cell, in consequence of no adhesions having taken place to confine it, I recommended that large doses of Peruvian bark should be given every three hours, with a few drops of the vitriolic acid in each dose; that moderate quantities of ale or porter, which she expressed a great desire for, should be allowed her; and that flannels moistened with a strong decoction of white poppy heads and chamomile flowers, of the temperature of the body, and having some laudanum sprinkled on the surface, should be kept applied to the diseased parts.

In a few hours the redness and puffy feel of the skin ceased to extend, and the matter, which oozed through the various orifices, assumed gradually the appearance of pus. In two days many of the orifices were closed, and in eight days more, the whole of them were skinned over. An extensive sloughing of the gums, however, took place on the side where the tooth had been extracted; several exfoliations of the lower jaw came away, and five sound teeth with them; this necessarily kept an extensive sore open in the mouth for

some weeks. The patient also, for some time after the external orifices were closed, complained of great stiffness of the parts, when she endeavoured to open her mouth, or turn her head. This, however, in time abated, and she now suffers no inconvenience whatever. Several small cicatrices are still very apparent on the cheeks.

XXX. *On Rheumatism of the Heart.* By

WILLIAM CHARLES WELLS, M. D. &c.

Read April 3, 1810.

DR. DAVID PITCAIRN, about the year 1788, began to remark, that persons subject to rheumatism were attacked more frequently than others, with symptoms of an organic disease of the heart. Subsequent experience having confirmed the truth of this observation, he concluded, that these two diseases often depend upon a common cause, and in such instances, therefore, called the latter disease rheumatism of the heart. He communicated what he had observed to several of his friends, and to his pupils at St. Bartholomew's Hospital, to which he was then Physician; but no notice, I believe, was taken of his remark in any book, before it appeared in the second edition of Dr. Baillie's *Morbid Anatomy*, which was published in 1797. No similar observation, as far I know, is to be found in any book written before that time. Morgagni, indeed, and Dr. Ferriar of Manchester,

had given cases of rheumatism existing with an organic disease of the heart, but it is evident that they considered the concurrence of the two diseases as merely accidental; and it is very probable, that similar cases occur in other authors who wrote before Dr. Baillie, though I have not met with them.

Since the appearance of Dr. Baillie's work, this disease has been treated of by Dr. Odier, of Geneva, in his *Manuel de Medicine Pratique*, printed in 1803, and by Mr. David Dundas, Sergeant Surgeon to the King, in a Paper lately published in the *Transactions of the Medical and Surgical Society of London*. Dr. Odier's work is only a text-book for Lectures given by him on the Practice of Medicine, and, as is common in such works, very few references are made in it to other authors. As he received, however, his professional education in this country, and has long conducted the medical department of the *Bibliothèque Britannique*, a literary journal printed in Geneva, he could not be unacquainted with Dr. Baillie's *MORBID ANATOMY*. Mr. Dundas takes no notice in his paper of what had been said upon the subject

of it, either by Dr. Baillie or Dr. Odier. He could scarcely, indeed, have seen the Manuel of Dr. Odier, and it is probable, that he had not read the account, which was given of it in the Edinburgh Medical Journal, for October 1806; but there is a greater difficulty in supposing, that he was ignorant of what had been mentioned, twelve years before, in Dr. Baillie's popular work, respecting Rheumatism of the Heart, on the authority of Dr. Pitcairn.

As I knew that Dr. Pitcairn did not mean to publish any thing upon this disease, and as I had good reason to believe, that it was unknown to many practitioners of medicine in this country, I formed the design, about four years ago, of offering a Paper upon it to this Society. But very shortly after, I saw the article in the Edinburgh Medical Journal, which relates to Dr. Odier's book, and, in consequence, determined not to proceed, till I should see the work itself. In the mean time, Mr. Dundas's Paper appeared, and this I found to contain so much information upon the subject of which it treats, that I necessarily regarded the value of what I had col-

lected myself as much diminished, and therefore abandoned the design of communicating it. But considering afterwards, that even a repetition of what had been already said might be useful, in exciting the attention of physicians to a disease hitherto little spoken of, I lately resumed my intention, and now offer, in the form of Cases, what I have acquired from other sources than Mr. Dundas's Paper, as our knowledge of the disease is still too imperfect, to admit the formation of a just history of it. I once expected that my Paper would be enriched by the contributions of my late most excellent friend Dr. Pitcairn; for although I knew that he had preserved no account in writing of what he had seen in this disease, yet I was confident, that the extent of his observation, for he had treated more than a dozen cases of it, and the accuracy of his memory, would enable him to afford me much valuable information. But I neglected to obtain this while the opportunity existed, and I now lament my indiscretion.

CASE I.

Mr. T. M. came from Scotland in April, 1798, to reside in Berkshire, being then in his eighteenth year. He was of a fair complexion, short stature, and a habit rather full than muscular. From the age of nine years he had been every year attacked with acute rheumatism. Four of the attacks had been very severe, each of them confining him to bed for several weeks; the others seldom kept him at home longer than a week, though the redness, swelling, and pain of the joints did not leave him for two or three weeks more. While he was labouring under this disease, the pains often shifted in the most sudden manner; and, in the greater fits of it, he was often distressed with a sense of oppression in his chest, frightful dreams, and despondency of mind. In November 1797, he had likewise had a slight spitting of blood.

Four weeks after he came to Berkshire, he fell into a small pond of water, while attempting to leap over it, and wetted his lower limbs as far up as the middle of his

thighs. He pursued, however, his exercise, and suffered his clothes to dry upon him. The following day, while walking in the streets of Oxford, he was suddenly seized with trembling and coldness, principally affecting his lower limbs, with faintness, giddiness, sickness at the stomach, and a sense of oppression in his chest. He afterwards became warm, and then began to feel a palpitation of his heart, and a beating in his head. In the progress of his illness, he was frequently attacked with breathlessness, a sense of choking, and a feeling as if he were about to expire. In the night time he used to be warm, and to sweat. After he had been affected in this way about three weeks, he came to London and consulted me. At his first visit, I did not become acquainted with all the circumstances which I have mentioned; and as I found his pulse frequent, and tongue white, and was told by him, that he was worse every other day at ten o'clock in the forenoon, I thought it probable, that his disease was a tertian fever, which had not yet fully intermitted. As I learned, however, when I saw him next, that the beating

in his chest was never absent, though at some times much greater than at others, and that he had been much subject to rheumatism, I began to suspect, that his disease might be rheumatism of the heart, of which I knew nothing, except what I had learned from Dr. Baillie's publication. I carried him therefore to Dr. Pitcairn, who confirmed my conjecture, and was fearful that he would not recover.

Mr. M. went again into the country; but I had frequent letters respecting him, and once visited him there. I think it, however, unnecessary to say more upon his case, than, that, after he had laboured under the palpitation four months, he was attacked with pains, swellings, and redness of his joints, which continued about six weeks, but were not so severe as to confine him to bed; that during this time the palpitation began to lessen, but that it did not entirely leave him before the end of the second year from its commencement. Mr. M. during his illness was several times seen by Dr. Bourne of Oxford. He was seen also by Mr. James Russell, of Edinburgh, who had often at-

tended him in sickness in Scotland, and, having been called by business to Birmingham, had afterwards extended his journey to Berkshire to visit him.

Since his recovery I have met with him frequently, and have several times applied my hand to the region of his heart, without feeling there any unusual beating. But he says, that exercise is now more apt to excite palpitation than formerly, and that he sometimes experiences it without any apparent cause. He thinks too, that it occurs oftener while he is affected with rheumatism of the joints, which continues to attack him every year, than at any other time. Before the palpitation comes on, he is seized with a gnawing pain in the region of the heart, and a sense of suffocation. In two or three minutes these symptoms either disappear, or become less; the palpitation then begins, and lasts about the same time. Such attacks, however, do not happen oftener than twice or thrice in the year.

I may add, that in the course of my correspondence with the relations of Mr. M. I learned, that one of his uncles, whom he

resembles in external appearance, after being severely afflicted with rheumatism, became, when about sixteen or seventeen years old, subject to violent palpitation of the heart, and some time after died suddenly ; and that, his body being opened, the heart was found enlarged.

CASE II.

Martha Clifton, aged nearly fifteen years, was admitted into St. Thomas's Hospital, on the 18th of February, 1802, after labouring under acute rheumatism about sixteen days. Her pulse was small, but the heart struck the ribs with such force, that its beats could be reckoned by applying the hand to the right side of the chest. About two or three years before, she had likewise been affected with acute rheumatism, during the presence of which she had been troubled also with a violent beating of her heart. In the interval between the two attacks of rheumatism, she had experienced no palpitation in her chest. The account of what I did not observe myself I received from the patient, and her mother ; but those, who are conversant with the

business of an Hospital, know that little dependance is to be placed upon the accuracy of patients or their friends, when they speak of symptoms which have formerly occurred. She remained in the Hospital eleven weeks, and was then taken away by her relations, for the purpose of being sent into the country. The pains in her limbs were nearly gone, and the palpitation of her heart was much diminished.

Many of the tendons of the superficial muscles in this patient were studded with numerous small hard tumours, an appearance I have observed only in one other person, a thin and feeble man forty-one years old, who also laboured under rheumatism.*

CASE III.

Charles Williams, aged twenty years, was received into St. Thomas's Hospital the 21st

* Dr. Lister has informed me, that the superficial tendons of Salmon, the subject of the seventh case in this Paper, were similarly affected. As Salmon did not mention this to me, and as I did not discover it myself, the same symptom may have existed in several of my patients, labouring under rheumatism, besides those of whom I have spoken.

of June, 1804, on account of painful swellings of his joints, under which he had laboured seven months. His pulse was quick, and his heart beat forcibly against the ribs. He had often, he said, in the course of the last eight years, been affected with a similar disease of the joints, during which he had always been troubled with a palpitation of his heart. After remaining a month in the Hospital, without receiving much benefit, he was discharged from it for disorderly conduct.

CASE IV.

Mary Bond came into St. Thomas's Hospital on the 9th of January, 1806, labouring under acute rheumatism, which had seized her eight days before. She was then in her sixteenth year, had never menstruated, and since her ninth year had been frequently attacked with rheumatism. When she had been three months in the Hospital, I discovered, that her heart beat much too strongly, and I was afterwards informed by her mother, that this symptom had always been present, while she was afflicted with rheumatism, but at no other time. She staid in the

Hospital nearly four months in the whole, and during that time frequently complained of pains in her chest. These, in the month of April, were attended for ten days with cough, difficulty of breathing, and an increase of fever. When she left the Hospital, the pains in her limbs were not entirely gone, and her heart was still beating strongly. Possibly, however, as the pains of her limbs had lessened considerably in the time between her coming into the Hospital, and the discovery of the palpitation, this symptom had also diminished in the same interval. I learned its existence from inquiring, if she was affected with it.

CASE V.

I visited Miss A. L. for the first time, on the 17th of September, 1806, at her father's house in Surrey, distant about eight miles from London. She was sixteen years old, tall, and thin, and had never menstruated. Several of her relations had died of pulmonary consumption, and she herself had laboured under an acute disease of the chest about four years before. From that time,

however, to the commencement of the train of ailments which I am about to describe, she had enjoyed very good health, and had possessed a much greater degree of bodily strength, than was indicated by her appearance.

In the beginning of August, shortly after remaining some time in a cold cellar, she was seized with pains, swelling, and redness of her joints, and fever. These symptoms lasted only ten days. About a week after they had ceased, she walked about a mile from her father's house, assisted by an attendant, and, while returning, accidentally wetted her feet. In the evening of the same day, she was attacked with pains in her feet, which were not accompanied with swelling or redness. These pains remained only a day or two; immediately upon their ceasing, her heart began to beat with considerable violence. Her right hypochondrium soon after became painful, and about the same time she began to complain of a pain in the tops of her shoulders. Various other symptoms had also occurred; but as no regular history of them had been kept, and as

the most important existed when I visited her, I shall proceed at once to give an account of the situation in which I found her, at the distance of nearly four weeks from the second attack of external pains.

The palpitation of the heart, which had never ceased from its first appearance, was distinctly felt in every part of the thorax, to which my hand was applied. In the arteries, only a shaking was perceivable, which could not be divided into distinct pulsations. The strokes of the heart were one hundred and ninety in a minute; they were equal in force, and the intervals, which were also equal, were so distinct, that I fancied I could have numbered the strokes, if two hundred and fifty, or even three hundred, had been given in the same time. Her breathing was not laborious, and she had no cough; but she frequently complained of a great and indescribable anxiety in her chest. This was always much lessened by her taking a few drops of laudanum and a drachm of vitriolic æther, although no change was ever induced by these medicines on the palpitation. The external jugular veins were swollen, and alter-

nately rose and fell. She had a little head-ach, was often sick at the stomach, and sometimes puked ; what was thrown up was for the most part green, and had a sour smell. Her appetite for food was, notwithstanding, far from being lost. The tongue was somewhat foul, and a small part of its middle was dry, but her thirst was inconsiderable. She had two or three stools daily ; their colour had formerly been green, but was now natural. There was now no pain in her shoulders, nor any in her right hypochondrium, except it was pressed. . On the day I visited her, the skin and eyes had begun to be a little yellow, and her urine, which was said to be sufficiently copious, now gave a slightly yellow tinge to white linen. On examining her feet, I found them œdematous. Her muscular strength was greater than might have been expected, considering the length and magnitude of her ailments.

I staid all night at her father's, and saw her early on the following morning, when I was astonished at learning, that soon after taking fifteen drops of laudanum, late in the evening, she had become quiet, had remained

so the whole night, and had enjoyed much refreshing sleep. The urine, which was passed in the night, had a pink-coloured sediment. In the other symptoms there was no change.

On the evening of the 19th, I visited her again, and was accompanied by Dr. John Meyer, of New Broad-street. The day before, she had been thought better; but many things seemed now to indicate her speedy death. The sickness had increased; her face and hands were cold, the skin pale, the motion of the artery at the wrist scarcely perceptible, and the strokes of the heart against the ribs of much less force than formerly. Their number was a hundred and seventy in the minute. She shewed, however, no sign of weakness of mind or of delirium, and her tongue was moist and clean.

My last visit was on the 21st. Shortly after Dr. Meyer and I had left her on the night of the 19th, she had vomited a considerable quantity of a thin fluid, mixed with a less quantity of a thick and very black fluid, after which she became better. I could again distinctly perceive motions in the

arteries, though they were not to be reckoned. The beats of the heart were one hundred and sixty in the minute, and were felt only in the left side of the chest. The skin of the whole body was warm and moist; that of the neck and chest was partially covered with a miliary eruption. Her bowels had been several days bound, except when loosened by glysters. The abdomen was somewhat swelled, and pressure upon it gave more pain than at my first visit. She was drowsy, but this was attributed to some laudanum which she had taken. She had lately spitten a little blood, but she was still without a cough. Respiration, likewise, was performed with little difficulty, and took place only twenty-five times in a minute.

On the following night, as I was afterwards informed, she was restless, which was attributed chiefly to the inflamed state of the skin of the chest, from a blister which had been applied several days before. She complained frequently in the night of pains in her legs and feet. She took, however, a considerable quantity of food; and her breathings, being reckoned, were found to be

only twenty-two in a minute, although there was no diminution in the number of the beats of the heart. In the morning, she began to be inattentive to what was passing in her room, and to speak sometimes a little incoherently. At two o'clock in the afternoon she died suddenly.

I had previously requested a friend of the family to apply, when death should occur, for permission to me to inspect the body. Application was accordingly made, and permission obtained. But some mistake was committed with respect to informing me of what had happened; and the weather being warm, and the family anxious to have the examination over, this was performed by the apothecary who had attended the deceased, assisted by his partner, and another medical gentleman. Had I been present, the younger Mr. Cline would have conducted the examination, as he had been kind enough to promise to accompany me for that purpose. The following are the principal morbid appearances, which, as I was afterwards informed, were observed.

The pleura of the ribs, and that of the

lungs, were inflamed, and in many places adhered to each other. The lungs felt firm and fleshy, from containing a quantity of coagulated blood. The whole of the internal surface of the pericardium was attached to the heart, by means of two distinct layers of solid matter, each having the thickness of a shilling; the outer resembled coagulated blood, while the inner was whitish, and sufficiently tenacious to permit its being torn. The surface of the heart was also inflamed, and, from the right auricle to the apex, black; its substance was flaccid, and appeared to be enlarged. About a pint of bloody serum was found in each cavity of the chest. A considerable quantity of fluid, slightly red, was likewise found in the abdomen. The right lobe of the liver was enlarged, and much inflamed, and, on its concave surface, black. The stomach, where in contact with the liver, was also black, and many parts of it had marks of inflammation. Many portions of the small intestines were inflamed, and the lower half of the rectum seemed to be gangrenous. I must remark, however, that what has been said of the stomach and intestines relates

only to their external appearance, for no part of them was opened.

CASE VI.

John Miller, a sailor, aged thirty-six years, pale and thin from bad health, was admitted into St. Thomas's Hospital, on the 1st of June, 1809, on account of pains in his limbs, with which he had been afflicted five months. His pulse was frequent and rather feeble, and during the two last months he had felt a constant beating in his left side, which upon examination I found to depend upon the action of the heart. He remained in the Hospital two months, in which time he became free from pain in his limbs, and in a great measure recovered his flesh; but the pulsation in his side, which had never been very great, continued unchanged. He now thought himself sufficiently well to go to sea, and was discharged from the Hospital at his own desire.

CASE VII.

George Salmon, at present in St. Thomas's Hospital, a domestic servant, nineteen years

old, of a fair complexion, short stature, and while in health fresh-coloured, and inclined to be fat, but now pale and thin, became the patient of my colleague, Dr. Lister, on the 11th of January last. From the notes which Dr. Lister has been kind enough to communicate to me, and from my own examination of the patient, I have collected the following circumstances of his case.

In June 1808, three days after being heated in a playhouse, and drinking while in this state a considerable quantity of porter, he was attacked with stiffness, pains, and weakness in his limbs, and with pains and swellings in the joints of his fingers. During this illness he also laboured, for a fortnight, under a pain of the right side of his chest, and a cough. In the course of three months the ailments in his joints became much less; but he did not entirely recover his health for nine months more, during which time he used to feel a beating in his forehead after running, and often had the joints of his fingers swelled for three or four days. He remained perfectly well to the middle of December, 1809, when he was seized with

stiffness, and slight pain in his lower limbs, attended with a rash, and feverishness. The rash occupied various parts of his skin in succession, but was never very extensive, and receded in a week. It has since been several times present for a day, but has not appeared for the last six weeks. Shortly after the beginning of his illness, the joints of the fingers began to swell again, and to be painful when pressed, in which state they still continue. Sometimes they are slightly red, and the back of his right hand was lately swelled, and a little red, for a few days. The stiffness and pain of his lower limbs began to decrease soon after he came into the Hospital; the former is now nearly gone, and the latter has not been felt by him for a fortnight. In the first part of his stay in the Hospital, he was attacked with a pain in his left side, which was increased when he drew his breath; this remained about fourteen days, and he has lately been frequently troubled with a slight cough. Since his admission into the Hospital, it has been discovered, that his heart palpitates. He does not know that he laboured before under this symptom; but

this seems no proof of its not having existed, for he is still scarcely ever conscious of it, from any internal feeling. While he is sitting or lying, the palpitation is often not to be perceived from applying the hand to his left side ; but as soon as he rises it becomes very evident. The pulse varies in point of number very considerably, but is generally between ninety and a hundred. The strokes are full, but are easily made to vanish by pressure. Each stroke is given rapidly, as if with a jirk, forming, I think, what Morgagni calls the vibrating pulse, and which so frequently occurs in diseases of the heart, particularly at their commencement, and in acute rheumatism. His skin is cool, but at night, he says, his feet often burn. His tongue is a little white, his appetite much diminished, his bowels open ; his urine is of a deep straw colour, but does not become turbid by cooling. He has no difficulty of breathing, except what he attributes to weakness, and his head is free from pain and uneasy feelings. He sleeps little, but is unable to assign any reason for it.*

* This patient left the Hospital a day or two after his case was taken by me.

Having finished the description of the cases seen by myself, which I think may be properly arranged under the title of rheumatism of the heart, I shall next relate several more, the knowledge of which I have derived from other sources.

CASE VIII.

This has been furnished by Dr. Baillie, and will be given in his own words.

March 25, 1807.

‘ A boy about ten years old, of a fair complexion, and irritable constitution, who had a scrophulous scar under the left side of the lower jaw, after labouring many months under rheumatism, was attacked with palpitation of the heart, and some time after died. He was attended by Dr. Vaughan, Dr. Reynolds, and myself. His body was examined, but I was not present. The heart, as I have been informed, was somewhat enlarged, and there was a strong adhesion of the pericardium to it. He had a few tubercles of the lungs, and I believe some of the glands of the mesentery were enlarged. The liver was also of a greater size than usual.’

In another communication, dated in April, 1809, Dr. Baillie says—‘ I have known a good many instances of palpitation of the heart in children, and young people of both sexes. I cannot, however, now remember distinctly more than three or four, where this affection was preceded by rheumatism. But I can hardly doubt that several cases of this kind have been forgotten by me.’

CASE IX.

I received this from my colleague, Dr. Lister.

‘ Miss P—, thirteen years of age, became my patient on the 17th of May, 1807, at which time she laboured under a very considerable difficulty of breathing, and a palpitation of the heart so violent, that not only the motion it gave to her clothes might be seen at a distance, but her body itself was shaken by it. Both these symptoms were increased by the least exercise. She had a slight cough; her countenance discovered great uneasiness; her pulse beat a hundred and thirty six times in a minute; the tongue was white; the appetite was less than natural;

the bowels were confined; the urine was in the usual quantity. She was emaciated, and her emaciation was said to have taken place during her present illness. I was informed, that she had been attacked in the beginning of the preceding February with acute rheumatism, which lasted about a fortnight, and that, when this left her, the shortness of breath, palpitation and cough came on. At first the cough was very considerable. Her feelings became less uneasy, and her pulse slower, under the use of a spare diet, and of a blister applied to the region of the heart. This alleviation of symptoms occurred too quickly to have been the effect of digitalis, which she was taking at the same time. On the 25th, the feet began to be œdematous; on the 29th the abdomen was swelled, and a fluctuation was to be felt in it. On the 5th of June the anasarca was general; the swelling of the abdomen was increased; the pulse intermitted, and was slower. On the 6th, in the morning, the swelling of the abdomen was lessened, and the patient thought herself much better. In the evening, she was suddenly seized with

extreme difficulty of breathing, and an occasional suspension of breathing; while the breathing was suspended, the pulse either did not beat at all, or beat very slowly. On the 7th, at two o'clock in the morning, she died.

‘ Leave having been obtained for examining the body, the examination was made by my friend Mr. Smith, of Southampton-street, on the 8th of June, and the following is the account he was so good as to give me of the appearances he observed.

“ The lungs adhered to the pleura costalis almost at every part. The left side of the chest contained about five ounces of water; in the right side there was about one ounce. The pericardium adhered to the whole surface of the heart; the adhesion was easily separable by means of the fingers. The heart was twice as large as natural; its muscular structure was increased in thickness, and all its cavities were very much loaded with blood. The cellular membrane of the lungs contained some water. In the cavity of the abdomen there was about a pint of water, in which were floating several portions

of coagulable lymph. The viscera of the abdomen were free from disease."

CASES X AND XI.

Both of these have been communicated to me by Mr. Benjamin Brodie, Assistant-Surgeon to St. George's Hospital.

' A girl, fourteen years of age, was admitted into St. George's Hospital, in the middle of April, 1807, with symptoms of acute rheumatism affecting the extremities. These symptoms in a short time subsided, but were immediately succeeded by pain in the chest, attended with a sense of oppression in breathing, palpitation of the heart, a quick feeble pulse, and general debility. On the 23d of May she died.

' On inspecting the body, the lung on each side was found adhering to the pleura lining the ribs, but the adhesions were not of a recent date.

' About twelve ounces of serous fluid were effused into the cavities of the chest.

' The pericardium was much inflamed, and the two folds of that membrane were united by a layer of coagulable lymph.'

‘ A woman, twenty-five years of age, was admitted into St. George’s Hospital, under the care of Dr. Nevison, in July 1807, labouring under dropsy of the abdomen, anasarca of the lower extremities, and a constant palpitation of the heart. She said, that some months previous to her admission she had been attacked with a rheumatic fever; that, on the fever subsiding, she was seized with the palpitation of the heart, which had continued ever since; and that the dropsical symptoms had appeared more lately. She died a few weeks after her admission.

‘ On inspecting the body, the lungs were found partially adhering to the mediastinum. There were adhesions every where between the two folds of the pericardium. On the internal surface of the left auricle of the heart, there was a space, of about an inch square, studded with very minute excrescences resembling small warts. Three excrescences of a larger size were found on the internal surface of the left ventricle, about an inch below the semilunar valves. One of these was so large, as to project about half an inch into the cavity of the ventricle. Two or three

similar excrescences were attached to the mitral valve, and semilunar valves of the aorta.

CASE XII.

This case was originally published in the London Medical Journal, for April 1803, by Mr. Wagstaffe of Southwark, in whose practice it had occurred. As it appears to me valuable, for this, among other reasons, that the body was examined after death by a teacher of Anatomy, Mr. John Taunton, I shall here give an abridgment of the original account of it.

Miss M. aged about fourteen years, of a spare habit, sallow complexion, and active disposition, became the patient of Mr. Wagstaffe, in the middle of January 1802, on account of her labouring under acute rheumatism. After continuing ill in town for nearly two months, she went into the country, whence she returned in a short time, apparently in good health. She remained well till the beginning of October, when she was again attacked with acute rheumatism. This disease disappeared in about a week, leaving

a most distressing cough, an excruciating pain in the left side, palpitation of the heart, and difficult respiration, attended with great dread of suffocation. The pulse varied from a hundred to a hundred and forty in the minute ; it was sometimes throbbing, at other times weak. Blood taken from the arm, at this period of the disease, exhibited but slight marks of inflammation. In a few days the respiration grew more difficult, and the patient now began to be sometimes affected with vomiting. Her situation afterwards became much less distressing, apparently in consequence of medical treatment ; but the amendment did not continue long, and she died in great agony on the 23d of November.

On opening the body, strong and extensive adhesions were found between the lungs, and the adjoining parts ; but the lungs themselves were sound. The pericardium was attached so closely to the heart, that it was very difficult in most places, and in some quite impossible, to separate them. The heart was enlarged, but its structure was natural. The abdominal viscera were in a healthy state.

The preceding cases appear to me just instances of rheumatism of the heart. The two which follow are less so, but seem, notwithstanding, sufficiently connected with my subject, to excuse my relating them.

Philip Smith, aged fifteen years, feeble from his birth, became a patient in St. Thomas's Hospital, on the 9th of July, 1807. In 1804, he had laboured under acute rheumatism four months. Two years after this, he was seized with a fever, which lasted also four months. During the fever, his heart began to beat more strongly than formerly, and it continued to do so ever after. From the time of his recovery from the fever, he had often felt pains, chiefly at night, in his lower limbs. The front of his head almost constantly ached; and blood had twice lately flowed from his nostrils. His face was frequently flushed, and sometimes appeared to him a little swollen. After he had been a fortnight in the Hospital, he was attacked with a pain in his right side, and a cough. He was an only child, and his father was so unhappy while they were separated, that he took him home on the 30th of July.

Mr. E. of Canterbury, about twenty-four years of age, of a fair complexion, and stout make, after being long constantly afflicted with rheumatism, either in its acute or chronic form, became subject to attacks of extreme difficulty of breathing, and a sense of tightness across his chest, attended with a pulse always frequent and small, and sometimes irregular. These attacks had of late occurred about once a month. They were frequently preceded by a slight inflammation of the fauces, and were sometimes accompanied with inflammatory swellings of the joints, but never with cough, or pain in the chest. When the difficulty of breathing was most urgent, no motion was perceptible in the abdomen from respiration. Such was the account of Mr. E's disease, which I received in September 1806, from his medical friends in Kent. By my own examination of him I learned, that in his best state he had a constant uneasiness under his sternum, which was increased by a deep inspiration; that he had often a beating of his heart while he was at rest, and always after he had walked a little quickly, when it was attended

with breathlessness ; that his pulse was frequent, and that his urine was high coloured when first made, and became turbid on cooling. A month after he consulted me, I was informed by one of his medical friends that he was better ; and the following year I was told, by a person whom he sent to me, that he was altogether well.

I think it proper also to mention here, that I have seen four persons die of peripneumony, which had supervened to acute rheumatism. The heart of one of them, a sailor boy, fourteen years old, beat with more than ordinary force, while he laboured under the disease of his chest. In another, a female servant, nineteen years of age, a patient of Dr. Lister's in St. Thomas's Hospital, the heart palpitated strongly in the beginning of the peripneumony. Her body being opened, along with other marks of disease in the contents of the chest, the pericardium was found to adhere in various places to the heart. The heart was not enlarged ; but its muscular substance was in several places inflamed. Permission could not be obtained to examine the bodies of any of the other three patients. In all the

four, the disease of the limbs either had become less, shortly before the accession of peripneumony, or was considerably diminished very soon after. Several other examples have been seen by me of an attack of peripneumony, in persons affected with acute rheumatism, but in these the patients recovered.

To render the historical part of my subject more complete, I shall add, that, in Mr. Burns' Observations on the Diseases of the Heart, there is an account of a girl affected with palpitation, who, among other symptoms, had frequently shifting pains in several of the large joints, and had formerly laboured under rheumatism; that, in the Nineteenth Number of the Edinburgh Medical Journal, an instance is related by Mr. Crowfoot of acute rheumatism, in a tall feeble man, about twenty-two years of age, being attended with symptoms of a diseased heart; and that of the three cases of carditis, which have been published by Dr. Davis, in his treatise on that disease, the first occurred in a girl twelve years old, who had laboured eight days under pains in her left shoulder, and insteps,

before any symptom of a diseased heart appeared, and became free from those pains the second day after the accession of such symptoms ; the second, in a boy seven years old, who suffered acute pains in the lower extremities, during different parts of his illness ; and the third in a girl sixteen years of age, the disease of whose heart succeeded the sudden disappearance of inflammation in her feet and ancles.

In regard to the treatment of rheumatism of the heart, the propriety of enjoining rest and low diet in the beginning of it, and, in every stage, of producing a discharge of serous or purulent matter from the integuments of the thorax in the neighbourhood of the heart, by the use of cantharides or other means, will, I believe, be admitted by every person. But, when the tender age of those most liable to it, and their frequent weakness, whether original, or consequential to the disease of the joints which had previously existed, are considered, it may often appear

improper to bleed, even at its commencement. Besides, as it has been found, that in London bleeding is never necessary for the cure of acute rheumatism of the external parts, and sometimes proves highly injurious; and, as the translation of the disease to the heart seems analagous to the recession of gout from the extremities; additional arguments may hence be derived against the general practice of bleeding, even in the very onset of the disorder. My own opinion, however, is in favour of copious bleeding, in the beginning of the disease, notwithstanding the force of the arguments which I have related. When the disease of the heart has quickly followed the entire disappearance, or considerable diminution, of that in the joints, we may attempt to bring back the latter, or to imitate it, by inducing inflammation in their integuments. I followed this practice in the case of Miss A. L.; but she suffered so much distress from the stimulating substances, which were applied to her joints, that her mother soon removed them; and, as her situation had from the first appeared to me hopeless, I thought it cruel to urge their renewal.

If the disease assumes a chronic form, and there be evident signs of an enlarged heart, it should, in my opinion, be treated, as if the enlargement had never been connected with external rheumatism; in which case, Dr. Ferriar of Manchester has experienced beneficial effects from the use of tonic remedies.

What has hitherto been said of the method of cure relates, chiefly, to the most considerable cases of the disease. In others of less magnitude, a different mode of treatment may sometimes, perhaps, be with propriety adopted, especially if they have been of long standing. In the second case, for instance, related by me, that of Martha Clifton, as I was informed that she had laboured under palpitation of the heart, in a former fit of rheumatism of the limbs, and that both diseases had left her at the same time, I applied myself solely to the removal of that in the limbs, expecting that the other would recede with it; and the event partly justified my practice, for they diminished together, though they both existed in some degree when she left the Hospital. I received similar information regarding the cessation of the internal and external disease

in the former attacks, which had been suffered by the subjects of the third and fourth cases, and followed therefore a similar mode of practice. On the same grounds, I employed mercury in the treatment of John Miller, the subject of the sixth case, but unsuccessfully with respect to the removal of the palpitation.

To conclude, I take the liberty of calling to the recollection of the Society, that the bodies of six of the persons, whose cases I have related, were examined after death, and that in two of them the liver was found diseased. I had supposed this to arise from the impeded passage of the blood from the vena cava through the heart, and its consequent congestion in the vessels of the liver ; but I have lately learned, that Dr. Odier has seen rheumatism translated from the joints to that viscus. The two instances, therefore, of disease in the liver, to which I have referred, may possibly have arisen from a common cause with the disease of the heart, and not have been the effect of it.*

* The following case, which I met with after the pre-

eding Paper had been read to the Society, strengthens my former opinion.

A sailor boy, seventeen years old, was received into St. Thomas's Hospital, June 6, 1811, after he had laboured four months under a pain in the region of his heart, difficulty of breathing, and a slight cough. His pulse was frequent; his heart beat somewhat too strongly, especially when he stood or walked; and his lower limbs were a little dropsical. He remained nearly in the same state till about the middle of August. All the symptoms of the disease in his chest then increased, and he died on the 2d of September. I had never observed the beats of his heart and arteries to have, during any short space of time, unequal force, or to follow one another at unequal intervals. No disease of the limbs had preceded or accompanied that in his chest. His body was examined the day after his death. The pleura of the lungs adhered in many places to the pleura of the ribs, and, between other parts of those membranes were found about twelve ounces of a watery fluid. The heart was enlarged, but not considerably. The pericardium and the covering of the heart adhered everywhere so closely together, that they could not be separated, and scarcely any line of distinction could be perceived between them. The aortic valves were thickened. In other respects the heart was sound. Both the liver and spleen were enlarged, but their substance appeared to be without disease. The stomach and gall bladder were likewise large. A few ounces of a watery fluid were found also in the abdomen.

POSTSCRIPT.

[*Read November 5, 1811.*]

After the preceding Paper had been read to the Society, two further cases of rheumatism of the heart occurred to me, which seem worthy of being made known to it.

CASE XIII.

Charles Mills, aged sixteen years, was admitted into St. Thomas's Hospital, on the 17th of August, 1810, after labouring three days under pains of his limbs. He was of a feeble appearance; and, four years before, his right leg had been amputated, in the same Hospital, on account of a long disease of the ancle. I saw him first at one o'clock in the afternoon of the 18th. His ancle was swelled, painful, and a little red. His pulse was frequent, and his face flushed; and both the latter symptoms were in a greater degree, as I then thought, than could be occasioned by the disease of the ancle, though he complained of nothing else. Three hours after-

wards, he was attacked with a pain in his left side, difficulty of breathing, and a slight cough. In two hours more, the pain in his side was increased, but that of the angle was nearly gone. At nine o'clock in the evening, the pain of the side, and the difficulty of breathing, having become greater, and his heart having begun to palpitate strongly, six ounces of blood were taken from his arm. After the bleeding, the symptoms were less for half an hour, at the end of which time they became as considerable, as they had been before. At four o'clock the next morning, the pain in the side was very great, and the palpitation violent. The patient frequently nearly fainted, and his pulse was one hundred and thirty in a minute. Eight ounces of blood being now taken away, the palpitation and pain became less. A blister was soon after applied to his left side. The occurrences after one o'clock on the 18th took place, while I was absent from the Hospital. I saw him again at one o'clock in the afternoon of the 19th. His breathing was then a little difficult, and his pulse one hundred and twenty in the minute, small, and

hard; but the palpitation had ceased entirely, and the pain of his side had nearly ceased. On the 20th, his pulse was one hundred and twelve, and was softer and fuller than on the preceding day; he had no pain either in his side or ankle, and no cough. On the following day the palpitation was present several hours, and he complained of a feeling of tightness across his chest. Eight ounces of blood were in consequence taken from him, and it was directed, that the blistered part of his side should be dressed with the ointment of cantharides. From this time I scarcely ever observed the palpitation to be entirely absent. On the 28th his pulse was ninety-two, to which it had gradually fallen. He complained this day of a pain in the right side of his chest, and on the 4th of September of pain in his ankle and left shoulder; but, in both cases, the pain lasted only a day or two. The palpitation having increased considerably, and the pulse having become more frequent, eight ounces of blood were taken away on the 11th of September, though he had no pain in his chest. During the whole of his stay in the Hospital,

he had been restricted to a low diet, and had taken as much tartarised antimony every six hours, as his stomach could bear without sickness being produced by it. When his bowels were costive, a little Epsom salts had been given to him. A discharge of serum or pus, from the skin of the left side of the thorax, had always been preserved. On the 15th of September, the antimonial medicine was omitted, and he was ordered to take ten drops of the tincture of digitalis three times a day. He used the digitalis for more than three weeks, and during this time the pulse was mostly as slow as it is in a healthy person, and sometimes intermitted; but the palpitation of the heart was scarcely lessened in force. On the 11th of October he left the Hospital. I saw him three months afterwards, at which time the strokes of his heart against the ribs were more frequent, and much stronger, than they ought to have been, if he had been entirely well. His external appearance, however, was nearly that of a healthy person. He said, that he had now no ailment, and that, for the most part, he did not feel any beating at his heart; but that

shortly after he went from the Hospital, he had been seized with a pain in his chest, which, however, left him soon, without his using any medicine. I saw him again a few days ago, about a twelvemonth after he went from the Hospital. He has become taller, and more robust, and has the look of being in perfect health, and this he said he enjoys. But I found his pulse to be one hundred and ten in a minute, and his heart to beat strongly against the ribs. The beating he imputed to his surprise at seeing me; and he assured me, that now he almost never experiences the slightest degree of it. As I staid with him, however, half an hour, and during the whole of that time perceived little alteration in the action of the heart, I must conclude, at least, that a small degree of surprise produces a greater effect upon it, than would happen, if there did not exist in it some remnant of an organic disease.

CASE XIV.

Anne Warwick, a nursery maid, in the twenty-first year of her age, was received into St. Thomas's Hospital, on the 14th of

March, 1811, being then affected with acute rheumatism, which had attacked her a month before. She had also pains in her chest, which I supposed to be seated in the external muscles, and a headach. In the course of the two preceding years, she had twice laboured under acute rheumatism, in a more considerable degree than at present; but at both those times she was free from ailment in her chest. The day after she came into the Hospital, she was seized with a pain in the region of the heart, on account of which a blister was applied to her left side. The following day I found her heart to beat strongly, which she said it had done nearly two days. Her breathing was also difficult, but she had no cough. Ten ounces of blood being taken from her arm, the symptoms of the disease in her chest were lessened; they encreased, however, on the morrow, and again became less, after a blister had been applied over the sternum. Her pulse was one hundred and forty in a minute, and she had now no pain in any limb except the right leg. On the evening of the 18th, she was breathless, and had a great tendency to faint;

but she did not complain of pain in her side or palpitation. The disposition to faint was, indeed, always present, when the disease of the chest was urgent, and at such times she frequently did faint. Twelve ounces of blood were drawn from her arm, and she soon became better. On the 21st, the difficulty of breathing and palpitation returned, but ceased almost immediately after she lost ten ounces of blood. I here mean by palpitation such a degree of beating of the heart against the ribs, as excited the patient's attention, and was uneasy to her. For I believe, that the heart, from the time of the first attack of the pain in her side, had always beat much more strongly in her, than it ordinarily does in a person in health. She remained free from uneasy feelings in her chest till the 28th, when she was attacked again with pain in the left side, and palpitation of the heart, both of which ceased on the following day, within two hours after twelve ounces of blood were taken from her. The pain of her side never returned; but she was often afterwards breathless and disposed to faint, particularly when in an erect posture; but, as

her strength had been much reduced by bleeding and other circumstances, these symptoms were probably occasioned only in part by the disease of her heart. On the 31st, about an ounce of blood flowed from her nose, soon after which her headach ceased, which had been almost constantly present from the day of her admission into the Hospital. She continued long feeble, and suffered much from various ailments, during the rest of her stay in the Hospital, which lasted till the 1st of the following June. When she went away, she complained of nothing; but she was still weak, and her heart still beat strongly. One of the nurses of the Hospital saw her about a month afterwards, at which time she appeared to be altogether well. I have no doubt, however, but that the action of her heart was then too great.

I shall now mention several things respecting this patient, which I have hitherto omitted speaking of, in order that the narration of the chief circumstances of her case might not be interrupted.

1. For the first four weeks, the only medi-

cines she took internally were lemon juice, neutralised by salt of tartar, and infusion of senna with Epsom salts. During the same time, a constant discharge, either of serous or of purulent matter, from the skin of the left side of her chest, was procured by means of cantharides; but when she became feeble, the discharge was allowed to cease, as the cantharides irritated her then considerably. At the commencement of the fifth week, she began to take the tincture of digitalis thrice a day, in doses of twenty drops, and she continued its use eight days. It seemed to produce no effect, either upon her pulse or her stomach.

2. Her pulse, during the whole of her stay in the Hospital, except upon one day, was very frequent; once, while she was in bed, it was a hundred and forty-four in the minute; but its strokes and intervals were always equal, except on the day to which I have just alluded. It was then only seventy-six in the minute, and both the strokes and intervals were very unequal. It was felt while she was in a sitting posture; and she had not taken digitalis for five weeks.

3. I have said that, in the first attack of the disease of her heart, she had no cough. No cough ever occurred in the progress of that disorder; from which it seems probable, that the inflammation did not affect any portion of the lungs.

4. After she had been a month in the Hospital, I discovered an eruption on the skin of her chest, arms, and hands, which I pronounced positively to be the itch. It went away, however, in three weeks, without any means being employed to remove it.

5. Five weeks after she came into the Hospital, she complained of her throat being painful. A few days afterwards, I perceived her breath to smell, as if she were in a salivation from the use of mercury; her tongue at the same time felt sore, and had white spots upon it. Saliva also ran from her mouth, though in no great quantity. She had used no mercury, in any form, while in the Hospital. This state of her mouth lasted nearly three weeks, and caused her to become very feeble, chiefly by preventing her from taking food. Small doses of Peruvian bark were now prescribed for her, and she

was allowed a little porter. Hitherto she had been kept on a low diet, and had been debarred the use of all fermented liquors.

6. Immediately after her mouth had become well, and as her strength was returning, her feet and legs began to be dropsical; but her progress towards recovery did not seem to be retarded by this event, and the swellings disappeared in the space of ten days. While they were present, she took Griffiths's mixture of iron, myrrh, and salt of tartar.

7. The pains in her limbs, which were said to have nearly ceased at the time she was first seized with the pain in her side, never returned with any violence. Indeed, while the disease of her chest was most considerable, they were sometimes entirely absent. They increased a little, when the disease of the chest became less, but left her altogether a few days before she went out of the Hospital.

In both of the preceding cases, the general health of the patients seems to have suffered from the means which were employed to overcome the internal inflammation; but,

I shall not hence be deterred, from using the same means in an equal degree, in any similar case that may hereafter occur to me. The palpitation, which remained in both patients so long after the violence of the disease had been subdued, probably depended, in part, upon some relic of inflammation in the immediate covering of the heart, and, in part also, upon the heart being irritated by the adhesion of the pericardium to it. As the palpitation, however, entirely ceased, in the course of time, in Mr. T. M. the subject of the first Case in the foregoing Paper, it is to be hoped, and perhaps expected, that time will produce a similar effect in the subjects of the two last cases.

XXXI. *Some Facts and Observations respecting Infection.* By GILBERT BLANE, M. D.
 &c. Read October 2, 1810.

UPON reviewing the notes, which I made while I was on service abroad, and while I was a Commissioner of Sick and Wounded Seamen, I find some facts respecting infection, which may not be unworthy of the notice of the Society. I shall transcribe these, and subjoin some remarks on them, and on the nature of infection in general.

Charles King, a common sailor belonging to the Conqueror, was admitted on the 1st of March, 1783, into the Naval Hospital at St. Lucia, on the fourth day after being attacked with fever, and just as the eruption of the small pox was becoming visible. The pustules, which followed, were flat from the beginning, and blackish in the middle; and they continued to wear this appearance till his death, which happened on the 19th of the same month. There was no matter in the

pustules, except on the hands, and there it was of a very thick consistence. They were very numerous, and in some parts confluent. The scrotum, prepuce, and glans penis, began to mortify before he died.

The cavity of the abdomen being exposed, the intestines appeared to be perfectly sound in their outward surface; but, on their being slit open from the stomach to the rectum, both included, the whole inner surface was found beset with small round ulcerated spots. The same appearance was found on the inner surface of the *œsophagus*. These spots were most crowded in the duodenum, and in the great intestines they were of a dark colour in the middle, like the small pox on the surface of the skin.

The villous coat of the stomach, near the pylorus, had the appearance of being much inflamed.

The liver and kidneys were sound. The gall bladder was full of viscid bile.

On the inner surface of the trachea, the same sort of ulcerated spots as in the intestines was found, and they were continued on the bronchia as far as their ramifications

could be traced. All these surfaces bore the appearance of having been in a state of inflammation.

Tubercles were found on the right lobe of the lungs, but neither hard nor suppurated. The whole of this side of the lungs had a turgid and inflamed appearance. On its uppermost extremity there was a cicatrix, the vestige of some old injury; and upon cutting into it, there were found small white hard bodies, of the consistence of horn or cartilage. The lungs on the left side were sound in every respect.

The brain being examined, the lateral sinuses, particularly the left, were found remarkably turgid with blood, and their coats were considerably thickened, and of a firmer texture than natural, with a number of very small, clear, globular bodies, adhering to their internal surface. There was a red suffusion, or increased vascularity, on the fore part of the cerebellum.

Pustules were observed, in similar situations, in another man who died of the confluent small pox, at the same place, about this time.

It can hardly be doubted, that these eruptions, on the internal surfaces of the organs of digestion and respiration, were of the same nature with the pustules on the skin, which characterise small pox.* This suggests one cause, at least, of the superior safety of the inoculated over the casual disease: the former, being communicated by the skin, will chiefly affect that part; whereas the other, being taken in by the breath, or swallowed with the saliva, will more readily affect those vital parts, with which it is brought in contact.

This, however, cannot be the sole cause; for the casual small pox is sometimes as mild as the inoculated, and the inoculated sometimes as malignant as the casual. This may be partly owing to the great diversity of individual constitutions. In some constitutions the susceptibility is so great, and the tendency to malignity so uncontrollable, that, if the rest of the species were similarly constituted,

* There is a difference of opinion among Physicians and Anatomists on this point. Morgagni says, that those are equally wrong, who affirm that pustules are almost always found in the intestines, as those who affirm, that they are never found. Epist. 39. Art. 33.

the human race would infallibly be extinguished. But it is farther observable, that the same individual is differently susceptible at different moments; for it is known, that a person has at one time been exposed to strong casual infection and escaped it, and at another has caught the disease, from an exposure so slight as not to be traceable. In reasoning upon this, it appears conceivable and probable, that, as casual infection is taken in by the inhalants, which are not always in an absorbing state, and may, in a sound state of the body, reject extraneous and acrimonious matter, agreeably to that elective power, which these vessels are alleged to possess, so they will imbibe it when in a less healthy state, and when the body is prone to fall into disease. If this is admitted, it will account for the greater danger of the morbid action, when this arises from the spontaneous inhalation of the poison, than when it is obtruded by art; and it will also account for the inoculated proving sometimes as fatal, as the casual disease; for the artificial insertion must occasionally coincide

with the morbid propensity, which gives effect to the casual infection.

I shall now enumerate some other facts, which have occurred to myself, or were reported to me in the course of my public duty, between the years 1795 and 1802.

1. I observed in some returns made to me by the Navy Surgeons in the West Indies, while I was Physician to the Fleet on that station, that the spreading of ulcers in certain ships could not otherwise be accounted for, than on the supposition of contagion; and this was put beyond all doubt by facts, which I met with in the journals of ships of war, while I was Commissioner of Sick and Wounded Seamen. As these have been already published in the different editions of a * Work of mine, on the Diseases of Seamen, I need not here enter into any details.

2. Boils sometimes spread in ships. Instances of this occurred in the Culloden, Penguin, and Snake.

3. Ophthalmia arose, and became general,

* This will be found fully proved and illustrated in the 3d edition of that Work, p. 503.

in two ships, before there could be any possibility of its importation from Egypt. One of the ships was the Overysse, a guard ship in the Downs, in which this occurrence happened in the spring of the year 1798. The other was the Achille, belonging to the Channel Fleet, in the spring of the year 1800.

4. In May 1796, a thrush affected the whole crew of the Lion, a fifty gun ship. It appeared chiefly on the roof of the mouth, and produced so much tenderness, as to render chewing very painful. It was not attended with fever, or any other complaint. Fifty of them were treated with purging salts, and cream of tartar, twice or thrice a day, and the complaint went off in a week or ten days.

5. I find it mentioned in the Surgeons' Journals, that the mumps prevailed epidemically, in ten different ships.

6. The Surgeon of the Blonde frigate, not one of these ten ships in which the mumps prevailed, reported, that, when that ship arrived in the Mediterranean, swelled testicles became epidemic among the crew, insomuch

that one-third of them was affected at the same time.

7. The Surgeon of the Diamond reported, that, in a cruise in the West Indies, forty of the men were taken ill with typhus fever, at a time when none of the circumstances were present, which commonly produce that disease; and he thought, that it probably arose from some of the men being affected with the small pox about that time. One of those in whom it was confluent died. According to the report of the same Surgeon, a solitary instance of the scarlet fever appeared about the same time.

8. The Surgeon of the Colossus reported, that five of the men were taken ill with the scarlet fever, attended with the usual symptoms of malignant sore throat; that one of them died; that two were sent to a hospital on shore; and that it was prevented from spreading, by destroying the clothes of the men affected, and using other precautions, such as washing their bodies, and fumigations.

9. It is stated in one of the journals of the Windsor Castle, a ninety gun ship, that a dysentery became very general among the

men, in consequence of a boy having been brought on board, labouring under that complaint.

10. Two cases of *plica polonica* were reported. One was in a boy, who said he had caught it by sleeping with a person who had it, a short time before he came on board. Of the other no history whatever was given.

The subject of infection and contagion is one of very difficult investigation, but of the utmost importance, seeing the prevention of sickness depends on a correct knowledge of their nature and course. Considered abstractedly, there are none of the *phænomena* of animal life more obscure and inscrutable. Why a secretion or exhalation, proceeding from the whole, or a part, of a diseased body, should excite the like action in the corresponding organs of another living person, seems to be a question beyond the reach of the human mind to resolve, and the fact, on which it is founded, can, perhaps, only be referred to some of those fundamental laws of life, which will probably never be discovered. It seems to

bear some analogy to certain essential functions of the living body, such as nutrition and secretion, whereby an assimilation of peculiar fluids is produced. To pursue the subject further would only lead to abstruse and fruitless speculation. We shall find it more useful and satisfactory to trace those circumstances, which influence the generation and propagation of infection.

One of the most important classifications of infection is into the specific and accidental. Those whose origin is ancient and unknown, whose existence depends on an uninterrupted propagation and diffusion of a morbid poison, which being lost, the disease would likewise be lost, and which generally affects persons but once in the course of life, constitute the former class. Such are the small pox and measles. Those which are generated from time to time by accidental circumstances, such as the typhus fever and dysentery, constitute the latter class.

The facts, which have been enumerated, chiefly relate to the accidental; and one of the most striking inferences from them is the effect of the concentration and stagnation

of morbid human effluvia, in generating and giving activity to morbid poisons. The circumstances of a ship at sea, in which men are so often crowded together, for a great length of time, exposed to each others' breath, perspiration, and contact, are well adapted to bring out facts for elucidating this subject. Accordingly we perceive, that, next to jails and hospitals, those disorders, which arise from the want of ventilation and cleanliness, are most apt to occur in ships. But, from the great peculiarity and variety of circumstances, in which the latter are placed, not only from the particulars above mentioned, but from the alterations of temperature, the kind of food, exposure to weather, and fatigue, diseases occur, which are rarely met with in any other situation of human society. I allude here, not only to the sea scurvy, but to the various forms of infection above enumerated, such as thrush and boils; from all which one is led to infer, that there is hardly any secretion or exhalation of the human body in a morbid state, which may not excite a similar complaint in other persons, under certain fortuitous circumstances favour-

ing its concentration and stagnation, its application and action; so that there may be diseases awaiting our species, which have not yet developed themselves. As it is certain that some have arisen in the course of past ages, such as the sweating sickness,* which have become extinct; so others may arise hereafter, out of the endless combination of circumstances incident to human life.

But the necessity of a concurrence of circumstances, in giving effect to contagion and infection, as well as in generating them, is a matter of the utmost importance, in considering the nature and course of epidemic disorders. The plague and yellow fever, for instance, never appear but under a particular range of temperature. This is clearly proved from civil history, as well as the records of physic, but, as far as I know, is entirely unaccountable, and can only be viewed as an ascertained matter of fact. The plague has never existed in England, as an epidemic,

* The plague of Athens also, as described by Thucydides and Lucretius, may be referred to the same head, for it is entirely unlike what we understand by the plague, or any other known existing disease.

except from July to October, when the general range of atmospheric heat is from 55° . to 70° . and it begins to decline rapidly in November, when the stock of infection is at the utmost state of accumulation; at a time, therefore, when the disease ought to be in its most aggravated state, if it depended merely on the presence of poisonous matter. In Egypt, on the contrary, this epidemic never fails to disappear at Midsummer, when the thermometer rises to 80° . and does not revive, till the ordinary heat of the air falls below 70° . The yellow fever exists only within the tropics, where the usual range of heat is from 75° to 90° , or in those seasons in the temperate climates, when the heat rises to this pitch.

There is another circumstance regarding these two epidemics, equally important and certain, and to me equally unaccountable namely, that in affecting assemblages of men they shew a strong predilection to those, in which there are concentrated and vitiated human effluvia, from crowded and ill aired habitations. In the histories of the plagues of London, it is mentioned, that the disorder

always made its appearance first, in those quarters of the town, where the poor and wretched lived in filth and foul air; that it was among these it chiefly prevailed;* and that a comparatively small part of the wealthy population was affected. There can be little or no doubt, that this epidemic is prevalent in the Levant above what it is in other countries, in the same circumstances, in point of climate, commerce, &c. in consequence of the filthy habits of the Turks inviting its attack, which is farther abetted by that fatalism, which is one of the doctrines of their religion. But though the plague is later in seizing upon that part of the community which live in pure air, it by no means spares them, for it spread more or less into every quarter of London, and extended even into villages more than † one hundred miles distant from the capital. This principle goes still farther in the yellow fever; for a certain degree of concentrated human effluvia seems indispensably necessary for its existence and propa-

* See the Life of Lord Clarendon, written by himself.

† In the records of the Plague of 1665, there is an account of its prevalence at Tideswell, in Derbyshire.

gation, since in no instance has it been known to spread beyond the limits of towns. This has been clearly ascertained in America, where instances have occurred, of strangers from the country catching it in the towns, going home to their families, and having the disease without communicating it. There is a well authenticated fact, analogous to this in the jail fever. In the celebrated assizes at the Old Baily in 1750, a number of persons, consisting of Judges, Jurymen, and others who were present, caught a fever from the prisoners, of which many of the infected died; but there was no instance of any one communicating this fever to his family or attendants. It is probable, that if those so affected had belonged to the lowest ranks of the people, and had been confined during their sickness in uncleanly, small, and ill aired apartments, the disorder would have been caught by those about them. In farther illustration of this important fact, I may remark, that neither in the course of my practice in naval and civil hospitals, nor in the numerous reports from them during my superintendence of the former, did the typhus fever

and dysentery ever spread, when the rules of cleanliness and ventilation were duly observed.

It appears, therefore, that in all the accidental infections there is a certain delicate concurrence of external and predisposing circumstances, requisite for their taking effect, some requiring one set of circumstances, some another, according to their respective natures, so as to put the constitution in unison, as it were, with the outward impressions; and it seems to be a want of attention to this, that has given occasion to much controversy concerning the infectious nature of certain diseases. It will hardly be believed, that in our times, there are persons regularly bred to the profession of physic, who maintain in printed works, that not only the yellow fever, but the plague itself, is not infectious. Dr. Stoll of Vienna, a man of excellent erudition, and sound understanding in other points, in a work printed about forty years ago, also maintained, that the plague is not an infectious disease.* The great danger of

* Dr. Maclean, who visited Constantinople a few years ago, has declared the same opinion in a printed work on that subject.

this opinion to society will serve, I hope, as a sufficient apology for my repeating here, in as plain and perspicuous language as I am master of, what I have endeavoured to explain elsewhere, but, in which, it would seem, I have failed in making myself understood; for it appears from some comments, that have been made on my statements of this fact, that my meaning has been misconceived or perverted.* Those who have controverted this opinion seem to have been misled by preconceiving and assuming *a priori*, that there is here an invariable uniformity, as in most of the processes of nature. They take for granted, that the plague and yellow fever, in order to be infectious, must follow the same rules, as the small pox and other specific infections, so as to be caught and to spread in all seasons and climates; whereas, it is one of the characteristics of the animal

* See among others, Medical and Physical Journal, vol. xviii.—There is a Spanish work, entitled 'Brieve Descripcion de la Fiebre Amarilla padecida in Cadiz, &c. Por Don Manuel de Arejula, Madrid, 1806,' in which there are the fullest proofs of all I have affirmed respecting the yellow fever, stated at great length, and with great precision.

nature of man, more particularly in a morbid state, to be liable to varieties, anomalies, limitations, and exceptions.

One of the most remarkable varieties in the history of such diseases is that property of specific infections, whereby the body, having undergone the disease once, becomes unsusceptible of it ever afterwards. This is extremely dark and inscrutable. It is evident, however, that, if it were not the case with regard to all such diseases as depend on infectious matter, they must in every instance prove fatal, so that there could be no such thing as recovery; for there could be no limit but extinction of life to the multiplication of the virulent matter, and the destructive tendency of its operation. This in fact seems to be the case with the hydrophobia universally, and with the small pox, and similar diseases, with regard to those individuals, to whom they prove fatal, where this event is not imputable to any error or accident. There cannot be a stronger proof of the great irregularity in the operation of these specific poisons, than the various degrees in which they affect individuals. It is

not only true that they produce every shade of intensity, from the slightest complaint to the most violent and fatal, but it is now made out by sufficient evidence, that a few constitutions are not susceptible at all, while there are others so framed, as to be susceptible of them twice. This last is a point of great importance, and has very lately been brought to the test of evidence. And though it seems at first sight paradoxical, yet, upon farther consideration, it will appear perfectly conformable to reason, that those who have had the disease in a slight degree are less likely to be susceptible of it in future, than those who have undergone it in its most violent and dangerous form. The constitutions of the former are so compliant, that they at once give up their susceptibility, thereby securing themselves from future attacks; whereas those persons, who struggle severely under the disease, betray a reluctance, as it were, to become unsusceptible of it, are at the very point of death before this takes place, barely stopping short of destruction, and approach in point of constitution to those, who, being incapable of becoming unsusceptible, are

inevitably overpowered by it. It follows that those constitutions, which are thus averse to become unsusceptible, are the most likely, on the same principle, to resume the susceptibility originally belonging to them. This is also conformable to fact, for of those persons, in whom there has been a second seizure of the small pox, the greater number have had it severely in the first instance. This is remarkably exemplified in that case, which occurred at West Shefford, near Newbury, in the year 1775, and which is recorded in the fourth volume of the Memoirs of the Medical Society, the first well attested one of this kind with which I am acquainted.* It is equally well proved, that measles may be caught a second time. The cases related by Dr. Baillie in this volume put it beyond doubt, and we have probably all met with

* See also well attested Cases of the same kind, in the Medical and Physical Journal, 1802, vol. v. p. 403, and 1806, vol. xv. p. 433, and 1807, vol. xvii. passim. Mr. Macgregor, Surgeon of the Military Asylum, at Chelsea, informed me, that a very clear case of second small pox occurred to him in a young person at that institution. The first attack had also been very severe, the face being full of marks and seams.

similar cases, but have referred the first attack to some fallacy, indolently acquiescing in the general persuasion, that the disease could not be caught twice; and some other eruptions so nearly resemble them, that a second occurrence is less likely to be detected than in small pox. With regard to the scarlet fever, though the rarity of its recurrence in the same subject places it in the class of those diseases, which occur but once in life, yet I have seen it twice in the same subject, and I know a young lady who has had it three times, without the least suspicion of ambiguity, or possibility of mistake. And as the main object of this Paper is to point out the great diversity, which takes places in the circumstances of infection, in order to guard against reasoning too hastily from analogy, we may here advert to the peculiar susceptibility of persons in infancy, and early youth, to scarlet fever. I have never seen more than one person above forty who was affected with this disease. It has been remarked above, in illustration of the same principle, that there are facts which lead us to infer, that there are a few individuals, originally

unsusceptible of small pox and measles. I believe every practitioner has met with individuals, who have resisted not only every degree of casual exposure to small pox, but also inoculation, though they never had been before affected with the disease. This is as credible, as that it should prove inevitably fatal to some, and be liable to recurrence in others ; nay it seems of a piece with these facts, and naturally to arise out of them, making a part of the same series of constitutions.

There is another set of facts in our times, which has made a great accession to the history of infection, has thrown great light on its nature, and has been rendered highly available to the best interests of society. I allude to that specific contagion derived from the cow. It would be too hasty a generalisation to infer from this, that all the specific contagions have been originally derived from some brute animal or other, but there seem to be sufficient grounds from analogy, at least for suspecting this, and for rendering it a subject of research.* As this is likely to

* It has been affirmed by some Author, to whom my memory cannot now refer me, nor do I know upon what

effect the destinies of the human race, more perhaps than any other medical discovery that ever was made, it cannot fail to impress us with a high opinion of the importance of researches into the nature of infection, and encourage us in cultivating a branch of knowledge still very imperfect, as there may be other undetected truths lurking under the very surface of nature, which, if brought to light, might prove of the utmost avail to mankind.

evidence, that the small pox has originated from the camel, as the vaccine infection has from the cow.

XXXII. *An Instance of the entire Want of Pulsation in the Arteries of paralytic Limbs.*

By JOHN STORER, M.D. Read July 2, 1811.

THE Case, that I am about to relate, is rendered remarkable by the occurrence of a pathological fact, of a nature so curious, as to have called forth my observation to every circumstance connected with it. At present, it does not promise to reward us by any immediate practical inferences, nor does it admit of explanation, upon any principle that may not be justly controverted; yet, I think it so likely to receive illustration and confirmation from similar facts, that I am encouraged to record it.

Mrs. N——, a married lady, upwards of fifty, and very corpulent, who had borne children, but had ceased to menstruate several years, was taken in the last week of March, 1811, with symptoms of a fever of the mildest kind. These consisted chiefly of aching of

the back and limbs, wandering pains in different parts of the body, a sense of general debility, heat, and a pulse about eighty-four in the minute, exceeding its usual standard by fourteen or fifteen; there was neither chillness, headach, nor much thirst. After a few days, the fever had remissions, and the exacerbations were followed by sweating. In this way the fever continued till the 9th of April, when, the window of the bed-chamber having been left open the preceding night, during a severe frost, and while the patient was in a state of perspiration, she complained of frequent coughing, and a considerable degree of pain in the right side of the chest. On the 10th, these symptoms were increased, and were accompanied with a bloody tinge in the expectoration, and a pulse about ninety, distinct and full. After a copious bleeding, a blister to the pained part, and a continuance of saline medicines, which, from the commencement of the disease, had kept the bowels freely open, I found her on the 11th, without pain, or very nearly so. Her pulse was reduced to eighty; the expectoration was free, but still had a bloody tinge, which

continued for a few more days. On the 12th, 13th, and 14th, she seemed to herself, and to her attendants, to be gradually improving; she was able to sit up for five or six hours at a time, and her appetite began to return.

Early in the morning of the 15th, after a disturbed night, she was suddenly seized with an excruciating pain in the left shoulder, extending nearly to the elbow, and, at the same time, with a paralytic affection of the whole left side, but without any corresponding affection of the face or speech, or any disturbance of intellect. When I visited her at one o'clock of the afternoon, I found that the pain, after the application of warm flannels, had removed from the shoulder into the left leg, below the calf, and into the foot, where it continued with so much severity, as to produce frequent screaming. The hand and arm affected felt colder than natural to my touch. She had some capacity of moving the shoulder, but could scarcely move the fore arm or hand. The left thigh and leg were in the same paralytic state, possessing a very obscure degree of sensation and

motion ; but the hand and foot were insensible even to the prick of a needle. So far this attack, except in respect to the pain in the parts, had nothing singular in it, bearing the character of an imperfect hemiplegia, such as usually occurs, where no apoplexy has preceded. On laying my finger on the left wrist to examine the pulse, I was the more surprised to perceive no trace of pulsation, as the situation and size of the radial artery were quite familiar to me, having uniformly ascertained the state of the pulse in the left arm, at each of my visits during this illness, and having uniformly found the pulsations full and distinct. As this was the arm from which blood had been taken on the 10th, I requested to examine it at the elbow, suspecting that the ligature might have been left, and was so tight as to compress the artery ; but there was no ligature, nor could any pulsation be discovered at the usual place where I knew the artery lay. For it happened that, at the patient's request, I had examined the part at the time I prescribed bleeding, to satisfy her mind that, her corpulence would be no bar to the safety of that operation. I

then made a similar examination at the axilla, and was convinced that the pulsations of the artery of the paralytic arm, from the axilla downwards, were quite extinct. To complete my surprise at a circumstance so new to me, I perceived the subclavian artery of the same side to beat distinctly, at one hundred and four in the minute. I also ascertained this to be the real state of the pulse in the right radial and the temporal arteries; and in all of them the beats were as full and distinct as in health. The singularity of this symptom led to an immediate examination of the left thigh and leg, and I was unable to perceive any trace of pulsation, either at the ham or groin.

In a patient of such corpulence, it would be presumption in me to assert the entire absence of pulsation in the crural artery, with the same certainty that I am able to affirm it in the arm; and I am the less disposed to do this, because the arm was, at this time, considerably colder than any part of the lower limb.

It happened fortunately, that Mr. Basnett, the surgeon who attended the family, was

present during this examination, and immediately satisfied himself, at my request, of its accuracy. Exclusively of the severe pain felt in the leg and foot, the patient complained of a sense of fullness and confusion, with obscure pain in the forehead. A dozen leeches were therefore directed to be applied to the temples and forehead, and warm fomentations, to be followed by a stimulating liniment, were to be frequently rubbed on the paralytic limbs, particularly the leg and foot, so long as the pain continued. Pills containing calomel were administered, and a saline opening draught was directed to be taken every six hours.

On the 16th, I found that the leeches had occasioned a copious bleeding, and that complete relief from the disagreeable sensations and pain in the forehead had followed. The severe pain in the left leg and foot had abated the preceding evening, the bowels had been freely opened, and my patient expressed herself with great cheerfulness, at having passed a good night, and being in all respects much better. She could now move the fingers of the left hand, although partially, and with

some difficulty ; the arm was moved with more ease, and she thought the feeling in it was more natural. The state of the leg was also improved, but she had little, if any, power of moving the foot. At this time she had no consciousness of general illness ; her whole solicitude was directed to the recovery of the use of her limbs, and to the uneasiness she suffered from a sense of coldness in the arm, when in the least exposed to the air, and which she therefore required to be kept constantly covered with flannels heated, or wrung out of a hot fomentation. The temperature of the arm, to my touch, was evidently lower than that of the rest of the body, although this did not perceptibly exceed the natural standard.

In respect to the pulse, every circumstance continued as on the day before. The same examination, made and repeated with attention, gave the same results. The right radial artery beat one hundred and four or five with regularity and distinctness ; so did the left subclavian ; but in the course of the artery of the left arm no pulsation could be discovered, nor in the corresponding leg and

thigh. Pills of rhubarb with ammonia were prescribed to be taken with the former draught; a blister was applied to the inside of the left leg, and the fomentation and liniment were continued.

On the 17th, there was an evident improvement, both in the motion and sensation of the paralytic limbs; the pulse at the right wrist beat as on the preceding day, but, in the left, all pulsation was as completely extinct as hitherto.

On the evening of the 18th, I found my patient still improving, particularly in the power of moving the affected parts. She had passed a quiet night, and perspired freely, except in the left arm, which continued colder than natural. The state of the lower limb, in respect to perspiration, could not be judged of, as it was generally covered with a warm fomentation. On this day she complained of acute pain on the inside of the left foot, and as she had experienced an attack of inflammation, which was considered as gouty, in one of her feet about six months before, she expected that this would prove a return of it; but there was neither swelling nor dis-

coloration, and the pain disappeared before the next day. Her bowels were, by the use of the last medicines, kept sufficiently open; her urine was in due quantity, and of a natural appearance. Her head was perfectly relieved; but the pulse at the right wrist still beat from one hundred and four to one hundred and six in the minute distinctly. This was so much beyond its natural standard, as to indicate some cause of internal irritation. She had, however, no constitutional complaint, except some remains of the cough and expectoration, which had come on in the preceding week. She had taken sufficient nourishment on the day before, without inconvenience.

An attentive examination of the artery, at the axilla, elbow, and wrist of the left arm, and of the arteries in the corresponding thigh and leg, ended, as before, in there being no perception of pulsation at any of those parts, where it ought to have been felt. The pulsations of the left subclavian artery, which, on the 17th, were distinct, and synchronous with the right radial artery, were on this day felt less distinctly, although they might still be

numbered. Mr. Basnett had visited the patient on both days, and made a report altogether corresponding with my observations.

On a deliberate review of the Case, at this stage of it, I confess, that I felt myself under no small embarrassment, in regard to the expectation that might be formed of its final result. A familiar acquaintance with morbid appearances, for upwards of forty years, had furnished me with no instance of the cessation of pulsation in a paralytic limb; and I was unable to calculate its consequences. It was evident from the temperature, and the natural hue of the skin of the affected arm, which was entirely free from swelling and vesication, that a certain degree of circulation subsisted; and flattered by a daily advancement in the motive and sentient powers of the limbs, I had hitherto indulged the hope, that, at each successive visit, I should have the satisfaction to discover a return of pulsation. The evident failure in the power and distinctness of pulsation in the left subclavian artery, which now appeared for the first time, damped these hopes. Still, my patient possessed her accustomed energy

of voice and manner, and there was no other symptom that threatened life. The blister on the leg had risen well, and was healing with a good aspect. The plan of treatment was directed to be continued.

On the 19th, I visited Mrs. N. at one o'clock p. m., and at my own request was met by Mr. Butlin, Mr. Basnett's partner, who had not seen Mrs. N. during this illness. We entered successively upon a new and minute examination of the pulse. The pulsations at the right wrist were distinct, but more frequent, by two or three in the minute, than at any former period of the illness; those of the left subclavian artery had become so indistinct, that no account could be taken of them. Mr. Butlin could not be assured that he had felt them at all; but he was quite decided, that there was no pulsation in any part of the left brachial artery, or in the artery at the left ham.

Our patient had received us cheerfully, and spoke with energy and much satisfaction of the improvement in the limbs, which was indeed very considerable. She could now move the foot in all directions, with ease and

rapidity, and support herself on the limb when out of bed. She had so far recovered the perfect use of her hand, as to be able to squeeze my finger with considerable force; the sensation was also more natural, although the whole arm was still too cold, both to her own feeling, and my touch. She had, however, become evidently more irritable and unquiet, requiring frequent change of posture. About the middle of the preceding night, she had begun to be affected with a kind of suspirium, or sob, which she compared to that produced by being plunged into a cold bath; this attacked her, whenever she was dropping asleep, and aroused her with the alarm of immediate suffocation. She referred this sensation to the region of the mediastinum; but, as soon as she was completely awake, it went off, and she was not sensible of any difficulty of breathing in the intervals. I observed, however, that her respiration was shorter and more hurried than hitherto, and that her countenance expressed more anxiety. Pills of rhubarb and squill were prescribed to be taken with the former draughts, and a blister was applied over the sternum. Soon

after we quitted her, the restlessness increased, with occasional returns of the feeling of suffocation. She passed a very unquiet evening, being frequently taken out of bed, and expired at two o'clock in the morning of the 20th, while her attendants were in the act of assisting her into bed. As soon as the issue of this singular Case was known, application was made for leave to inspect the body, which was refused.

On reviewing the history of a disease, involving a phænomenon so extraordinary, as the absence of pulsation in the principal artery of a paralytic limb, it is to be lamented, that we are deprived of that light, which an accurate inspection of the body after death might have afforded.

It seems to me, that there are but two hypotheses, upon which any rational conjecture can be founded, to account for the absence of pulsation in the arteries of a paralytic limb. The first of these is, that there exists some obstacle to the course of the blood in the arterial tube, arising either from a disease of the tube itself, or from some compressing power, acting upon it externally.

It is impossible, however, in the Case of Mrs. N——, to imagine any such cause, capable of exerting its influence at once on the brachial and crural arteries of one side, and on them only. But, if the want of pulsation had even been confined to the upper extremity, any obstructing cause, acting within, or upon, the artery of the arm, to be consistent with the circumstances of the case, must have existed in some point between those parts of the artery, denominated subclavian and axillary, and there was certainly no external appearance to justify such a supposition. Neither would it account for the gradual failure of the pulsations of the subclavian, during the two last days of the disease. But, to this account of the matter, there is another, and to my mind a more weighty objection. There is positive evidence that the cessation of pulsation in the arm took place within a few hours before or after the attack of hemiplegia; and, this being proved, it seems fair to presume, that the two circumstances were connected. As experience is in this Case out of the question, it would be extremely difficult to imagine any mechanical cause arising so

suddenly, and of a nature so powerful, as to impede the flow of blood, without manifesting itself by some external appearance.

The other hypothesis is, that, although it is admitted to be true, that the vital organs are generally exempt from the effects of paralysis, yet it seems more than probable, that, in certain rare instances, the arteries themselves are susceptible of palsy. If this notion should be thought admissible, it would at once give a complete explanation of all the phænomena, and would be equally applicable to the condition of the arm, whether we suppose the pulsations of the lower limb to have been obliterated or not.

If it be objected as an inconsistency in this hypothesis, that, supposing a paralytic affection of the artery of the arm, depending on the same cause, and occurring at the same time, as that of the voluntary muscles, it seems wholly unaccountable, that the sensation and motion of the affected limbs should be gradually restored nearly to a perfect state, whilst the arterial palsy increased, so as finally to prove fatal; I may plead, in answer, the mystery which to this day involves all those

changes in the animal frame, that are known to depend upon the condition of the nervous power, and may add, that the nervous energy in the organs of vital motion is governed by laws, entirely distinct from those that guide the voluntary muscles.

Nottingham, June 26, 1811.

POSTSCRIPT.

I FLATTER myself I may be indulged in annexing to this history a brief account* of a Case, which happened several years ago, but has only of late come to my knowledge. It has since been recounted to me by Mr. Vickers, Surgeon, of Loughborough, who attended the patient, with a readiness and distinctness, which proved the deep impression it had made on his mind.

Mr. Lockwood, a farmer, of Barrow, in Leicestershire, about sixty years of age, remarkable for no peculiarities of constitution or habits, returned one morning from his accustomed ride round his farm, to breakfast with his family, at eight o'clock, in perfect

health. Before he had finished, the hand which held the tea cup, then at his mouth, dropped lifeless on the table. His observation was, 'I do not feel ill, but this must be of consequence; let Mr. Vickers be sent for immediately.' When Mr. Vickers arrived, which was within two hours after the seizure, he found the arm completely paralytic, and colder than natural. On examining the wrist, he could feel no pulse; neither did it ever return. The pulse in the other arm was still in a natural state, the beats being distinct, and not exceeding in frequency the healthy standard. He affirmed that he had no complaint to make, but of the loss of the use of his arm. Mr. Vickers employed hot fomentations, stimulants, and friction, in the hope of restoring vitality to the affected limb, but without the least success. Its colour, which at first was only too pale, soon grew dusky, and this dingy appearance increased hourly, but without swelling or vesication. About four hours after the attack, his constitution shewed signs of becoming affected. He complained of faintness and perspiration; the pulse was accelerated, his

respiration grew frequent, and at length somewhat interrupted and laborious. Such was the rapid progress of the symptoms, that the surgeon did not leave him till he was in the act of breathing his last, which happened within six hours from his first seizure.

I will not multiply observations on this Case, since in it too we are deprived of the advantage, which might have arisen from dissection. Suffer me only to observe, that if this is to be considered as a case of spontaneous gangrene, it bears no resemblance to any that has occurred within my observation, or that I have ever seen described. Some examples of very rapid and fatal gangrene might be quoted, but none, I believe, where the sensation and motion of the part were previously and suddenly destroyed. If such were to be found, I should be disposed to consider them in the light that I view this, as instances of complete palsey, affecting equally the muscles and arteries of the limb, and proving so speedily fatal, because the influence of a paralysis in this degree, on parts essential to life, may be reasonably supposed to be inconsistent with its prolongation.

WHEN the preceding Cases were read to the Society, Dr. Wells mentioned, that a similar one, with respect both to the principal symptoms, and termination, had been related to him by the late Dr. G. Fordyce, who had seen it along with Dr. Sequeira. At the desire of the Society, Dr. Wells afterwards applied to Dr. Sequeira, who was in consequence so kind as to furnish him with extracts from the notes, which he had taken of it. From the information received in this way, and the communication of some additional circumstances, by an intimate friend of the deceased person, the following account has been compiled.

Mr. J. S——, an eminent merchant, aged sixty-two years, tall, of a ruddy complexion, and inclining to be corpulent, in general healthy, but subject to a cough and difficulty of breathing in the winter, one morning, in December 1801, a few hours after the commencement of a great thaw, as he was proceeding on foot from Highgate to London,

with a pair of tight boots on, came to a considerable puddle of water, to pass which, he jumped from a bank on one side of the road to a piece of hard ground. He felt immediately a disagreeable jar through his whole body, and was a little stunned, but did not fall. In a minute or two he was able to continue his walk to town, where he did his usual business that day, both in his Counting-house, and on Change. On the evening of the following day, he complained of a pain in his right foot, which a surgeon, whom he consulted concerning it, attributed to a sprain occasioned by his leap. About a week after, his right leg was attacked with pain and swelling; these symptoms were ascribed to gout, under which, or something like which, he had once formerly laboured. A pain in his lower belly soon followed, which went away, after his taking some opening medicine, and never returned. His winter cough, and difficulty of breathing, now came on; and as he found that they were more troublesome, when he lay down, than when he sate up, he used a bed-chair, to enable him to sleep with the trunk of his body nearly

erect. While things were in this state, he awoke one morning with an excruciating pain in his left arm; this was supposed to have arisen from the pressure of the bed-chair, which was too small for a person of his size. In the afternoon, the same arm became numb and motionless, immediately upon which the pain in it ceased. About the same time, the pain and swelling in the right leg disappeared. At the first visit which Dr. Sequeira made after the occurrence of the palsy, he was surprised to find, that no pulse could be felt in the paralytic limb. He was well acquainted with the patient, and had often felt the pulse before in both wrists. Being now very much alarmed, he requested that Dr. Fordyce might meet him in consultation. There was, however, no other symptoms of danger than what were furnished by the state of the left arm; for the pulse in the other arm was natural, in regard both to frequency and force; the patient was in good spirits, and in perfect possession of his mental faculties; and the skin of the affected limb retained its healthy colour, and, to the feel of Dr. Sequeira, its usual heat.

When Dr. Fordyce saw the patient, he apprehended the approach of mortification, and advised the adoption of measures to prevent it. For two days no further alteration took place. On the morning of the third day, Mr. S. rose from his bed, in order to make use of a close-stool, which was in his bed-room; but before he could reach it, he was seized, according to the report of his nurse, the only person with him at that moment, with convulsions, and in a few minutes expired. The friend, however, of whom mention was formerly made, has told Dr. Wells, that he saw Mr. S. a minute or two before he died, as he happened to be in his house at the time he so suddenly became worse, and that he was then neither agitated in his limbs, nor discoloured in his face, but seemed to be in a faint.

The paralytic arm was examined on the following day by an excellent anatomist, who was unable to discover any organic disease in the blood vessels, or any other part of it. The relations would not permit him to open the head, thorax, or abdomen.

Dr. Wells also recollects Dr. Fordyce's mentioning, that he had ascertained, by an

experiment, that, notwithstanding there was no pulse in the left arm, the blood still moved through its arteries and veins. The experiment, Dr. Wells thinks, was the following: he compressed a large vein of the arm with one of his thumbs, and, with the other, forced upwards the blood contained in an inch or two of the same vein immediately above the compressed point. The part of the vein lying between the two thumbs being now empty, he lifted the lower one, and instantly the portion of the vein, which had been empty, became full.

XXXII. *Observations on pulmonary Consumption, and intermittent Fever, chiefly as Diseases opposed to each other; with an Attempt to arrange several other Diseases, according to the Alliance or Opposition which exists between them, and one or other of the two former.* By WILLIAM CHARLES WELLS, M. D. &c. Read December 24, 1811.

I was informed in Holland, in the year 1779, by an old Scotch officer,* in the service of the Seven United Provinces, that, while in garrison in Flanders, he had often seen consumptive persons come, for the benefit of their health, from the high and dry parts of the country, to those which were low and marshy, and infested with agues. As I took for granted, that this practice would not have arisen, unless it had been observed, that consumptions were more rare in the latter than in the former places,

* The late Colonel John Sutherland, of Stuart's regiment of the Scotch brigade, a good soldier, and most excellent man.

I determined to inquire, whether countries in general, which are much subject to intermittent fevers, including remittents under that term, abound less in pulmonary consumption, than others which are free, or nearly free, from them, but enjoy the same, or nearly the same temperature of air; and whether the same country becomes more productive of consumptions, after agues have ceased in it, or have declined considerably in frequency and violence. The circumstance of temperature, I conceived, was always to be regarded, in making comparisons of this sort, as it appeared to me established beyond a doubt, that pulmonary consumption prevails less in warm countries, than in those which are cold, when their other circumstances are similar. The fruit of these researches, will now be laid before the Society. They have not been nearly so extensive as might be expected, considering the remote date of their commencement; but they will, perhaps, be notwithstanding thought by you, to afford answers nearly, if not altogether, satisfactory to the questions which have been mentioned.

London, in the course of the last century, underwent two remarkable changes with respect to its diseases. Soon after the beginning of that century, the deaths from consumption, according to the Bills of Mortality, constituted only an eighth of the whole number, but formed towards the end of it one fourth. In the former part of the same century, intermittents were very frequent in London,* but, in the last part, they were so

* No just estimate can be formed of the former prevalence of intermittents in London from the Bills of Mortality. Thus, in 1661, when by Graunt's rule, which is to take the 40th of the deaths arising from agues and fevers conjointly, for those arising from agues alone, the deaths from agues were only 87, there were, according to Sydenham, no fevers but those of the intermittent kind, the deaths from which, consequently, must have been the whole number assigned to agues and fevers, in the general Bill for that year, namely 3490. It is indeed not extraordinary, that so small a number of deaths should have been assigned to agues; since, when intermittents prove the cause of death, it is almost always by their assuming the form of remittents, in which case they would be called fevers in the Bills, or giving rise to various chronic diseases, as dropsy and jaundice. In later times, when intermittents were milder, and their treatment more generally well understood, the deaths ascribed to them became still less frequent, in proportion to their prevalence.

rarely, if ever, contracted in it, that whenever I attempted to trace the origin of those which I saw here, I could always fix it in places more or less remote from the capital.* There is, therefore, a strong presumption, that the changes in the frequency of these two diseases were, in some degree at least, connected together; and when it has been shewn, that similar changes have occurred in other places, this presumption will probably be regarded as converted into proof.

An objection, however, may be brought against this argument, from what has been stated by Dr. Woolcombe,† of Plymouth, respecting the greater frequency in London of consumption, in the middle of the 17th, than in the middle of the 18th century, it being incontestible, that intermittents were much more common at the former than at the latter time. This objection will, I expect,

* See Short on Bills of Mortality, p. 208; Fothergill on Weather and Diseases; Baker on Intermittents, Medical Transactions, vol. iii; and Willan's Reports, p. 203. I have not hitherto been able to find accounts, by Physicians, of the diseases in London throughout the last century.

† 'Remarks on the Frequency and Fatality of different Diseases.' P. 52.

be thought of little force, when attention has been given to the following considerations.

1. Dr. Woolcombe has committed an error, in comparing the frequency of death from consumption and tissick together, in the 17th century, with that from consumption alone in the 18th; in the first year of which, those two articles began to be inserted separately in the Bills of Mortality. The deaths from tissick, in the Bills of the first ten years of the 18th century, amounted to about one-ninth of those from consumption during the same time. To know, therefore, the number of deaths from consumption alone, in the middle of the 17th century, a tenth is to be taken from the deaths from consumption and tissick in the Bills of that time; and when this is done, the proportion of those from consumption to the whole mass will be as 1 is to 5, and not as 1 is to 4.6, according to the statement of Dr. Woolcombe.* The difficulty, therefore, to be removed is of somewhat less magnitude, than it at first sight appears to be.

* For the same reason, the real number of deaths from consumption, during the last five years of the 17th

2. The Bills of Mortality are compiled from the reports of certain old women, called searchers, whose duty it is to examine the bodies of those who die, and to learn the causes of their deaths. These reports are made to the clerks of the different parishes, who afterwards reduce them into order. Now, I have been informed by the clerks of two parishes, that the greater number of the deaths, which they themselves enter, as being caused by *consumption*, are reported to them by the searchers as arising from *decline*, a word, when applied to disease, of the most extensive signification among our common people, the class which furnishes the chief part of the materials for the Bills of Mortality. Errors, from this source, are probably nearly equal in the Bills for neighbouring years; but they may be very unequal in

century, is to the whole number of deaths, in the proportion of 1 to 6.5, and not in that of 1 to 5.8, as mentioned by Dr. Woolcombe. Had this circumstance been attended to by that respectable author, he would, probably, not have considered as great, the decrease of deaths from consumption in the beginning of the 18th century, when they were made, by the learned Dr. Heberden, to amount at that time to one-seventh of the deaths from all causes.

those which are a century apart, for two reasons. In the first place, there may in time arise a great difference in the number of deaths, from the diseases which are ranked, with pulmonary consumption; under the term decline, while the real number from pulmonary consumption is unchanged; and, in the second, fashion may extend its influence even to the poor, and occasion those of one century to denominate certain diseases declines, which those of another would call differently. That fashion, or some such cause, has influenced the formation of the Bills of Mortality, is evident from the inspection of those of periods considerably distant from one another. Several old titles, for instance, have disappeared, under one of which, the Rising of the Lights, a great number of deaths used to be comprehended; and others have been added, as, for example, Mortification, which cannot be supposed equivalent to the old term Gangrene, as it contains many more deaths.*

* It is evident from what has been said, that, when Dr. Woolcombe compares the frequency of death from pulmonary consumption, in Plymouth, as determined

3. The population of London was quadrupled in the course of the first eighty years of the 17th century,* and, as no great city even preserves its numbers, without a constant supply of new inhabitants, the whole of that increase must have been derived from other places. But the new comers, if we judge from what happens at present, would almost all of them be young and unmarried, persons between † fourteen and thirty years

by cases which he attended himself, with the frequency of deaths from consumption in London, as determined by the Bills of Mortality, he compares two very different things; and that his conclusion respecting the greater number of deaths from pulmonary consumption in London than in Plymouth, in proportion to the whole number of deaths in each, is not warranted by the premises. It appears, on the contrary, very probable, that a greater proportion of deaths occurs in Plymouth, from pulmonary consumption, than in London.

* Sir W. Petty's Political Arithmetic.

† A very great number of persons of the age of fourteen, or thereabouts, have always come to London in order to be apprentices; but this number must have been, in the 17th century, much greater, with respect to the number of its inhabitants, than at present, as a much greater proportion of the trade and manufactures of the whole kingdom was then carried on in the capital. The London apprentices once formed so considerable a body, as to have influence upon public events.

of age, who had to form establishments before they married, and a greater proportion of whom would never marry, than of those of similar ages, who remained in the country and smaller towns. An immense fund for deaths by pulmonary consumption would consequently be given to London, in addition to what its own births afforded, without a correspondent fund being furnished for deaths from many other diseases.* As the city enlarged, equal additions of new inhabitants would bear a less and a less proportion to the number of the old, and the effect which I have ascribed to them would gradually diminish. Now this appears from the Bills of Mortality to have actually happened. The deaths from consumption gradually decreased from the middle of the 17th century to the end of it; during which time, the proportional accessions of new population were also becoming less. In the same interval, no other consi-

* This reasoning is confirmed by the fact, that the proportion of deaths from children's diseases is much less in the Bills of Mortality of the 17th, than in those of the 18th century; for it cannot be supposed, that the state of London was more favourable to the rearing of infants, in the former than in the latter period.

derable alteration took place, with respect to ordinary diseases. The population of London became stationary about the commencement of the last century, and has since remained nearly so, in regard to those parishes which furnish the Bills of Mortality.

It must be remarked, however, that a part of the increase of the deaths from consumption, in the latter half of the past century, when these are spoken of as bearing a certain proportion to the whole mortality, is only apparent; for since the whole mortality decreased in that period, a fixed number of deaths, from any one cause during it, will bear a greater proportion to the whole number,*

* It seems to me, that no tolerably accurate estimate of the probability of human life, at any age, can be formed from what happens in London, or any other great and crowded city. Thus, to judge from our Bills of Mortality, the probability of life between the the ages of five and ten must be very great. But, it is evident, that this is in great measure only apparent; for, in consequence of the immense number of deaths which have taken place among children under five years of age, few are left of the native stock to die between the ages of five and ten, and few children, of ages betwixt five and ten, come to us from other places.

than it would have borne at a former period. I may add, that, as London continues to receive a considerable number of young unmarried persons, the mortality in it from consumption must even now be greater, than in proportion to its disposition to produce that disease, and that, on the contrary, those places, which send off many of their young people, will hence appear less apt to give rise to consumption, than they are in reality.*

I shall next briefly speak of the prevalence of pulmonary consumption and agues, in several other parts of England.

Dr. Marshall, of Lynn, a place in the neighbourhood of a fenny country, in an answer to a query on this subject, which was transmitted to him, about twelve years ago, by my late friend Dr. William Robertson, then a physician in London, but afterwards post-master general for Scotland,

* I confess, however, that if I had no other authority for my opinion concerning the opposition of intermittent fevers to consumption, than what is derived from the information respecting the prevalence of those diseases in London at different times, which I have hitherto been able to procure, I should not make it public.

wrote as follows : “ This place, I apprehend, comes within Dr. Wells’s description, and I am inclined to think, that he is perfectly right in his conclusion. The intermittent fever, wherever it prevails, will bear no brother near the throne.”

Mr. R. Weekes, of Hurstperpoint, in Sussex, an experienced practitioner of medicine, informed me in the year 1807, that the lands in his neighbourhood had of late been much more effectually drained than formerly ; that intermittents had since become much less frequent ; and that, in the same interval, pulmonary consumption had, in his opinion, become more frequent. The last mentioned change, he was indeed disposed to attribute to the food of the common people being less nutritious, than it used to be ; but I shall hereafter show, that a similar increase of consumption has occurred in other places, with a decrease of agues, during the time, that an improvement in the food of the inhabitants was taking place.

Dr. Harrison, of Horncastle, in Lincolnshire, published in the London Medical Journal, for September, 1802, some account

of the diseases of that county. He says in this account, that the idiopathic pulmonary consumption is much less frequent in the fenny parts of the county, than in those which are high. He attributes this difference in regard to disease, to the soft and moist air of the fens; but the air of Devonshire and Cornwall must, I think, be at least as soft and moist as that of the fens in Lincolnshire, and yet pulmonary consumption abounds exceedingly in both of the former counties. I have been informed by a clergyman, who is a native of Lincolnshire, and resides there, that he has known several instances of consumptive persons being sent to the fens for the recovery of their health.

I have received similar accounts of the comparative rareness of pulmonary consumption, in the marshy districts of Kent and Essex, but in a form not sufficiently authentic, to entitle them to insertion here.

The face of the lower country of Scotland underwent, perhaps, a greater change during the latter half of the last century, than had ever taken place in any other equal part of Europe, in the same space of time. Among the improvements then executed there, was

the more effectual draining of wet lands, in consequence of which, many parishes, that had been much infested with agues, were rendered either free from them, or much less subject to them. In Sir John Sinclair's Statistical Account* of that country, the reports of sixty-seven clergymen are given, which mention, that their parishes either were at the times of their writing, or had been, more or less subject to ague. In seven of these parishes consumptions had increased, as agues had declined. In forty, agues were said still to exist; but no notice was taken of consumption, from which it may be concluded, that, in many of them it was not very prevalent. In five, agues had entirely disappeared, and in these also consumptions had probably not yet become very numerous, as nothing is said concerning them by the reporters. In ten, agues had declined, and consumption was prevalent; but it was not

* I did not read through more than four of the twenty volumes, of which Sir John Sinclair's work consists. The rest I only turned over, in search of what is in it relative to my subject. It is very probable, therefore, that I have not obtained from it all that a complete perusal would have furnished; but any deficiency from this cause cannot, I think, be very great.

mentioned, whether it had lately increased. In two, both consumption and ague were said to have diminished; and in three, both were said to be frequent. The lands, in one of the last mentioned parishes, are stated to be hilly, from which it is probable, if there was no mistake about the disease, that the instances of consumption originated in it, and that the ague was derived from neighbouring low grounds, to which its inhabitants sometimes resorted. Another of the same parishes consisted of a market town, and lands in its vicinity; the former of which might have given rise to the consumptions, and the latter to the agues. Considering that the reports were made by men unacquainted with diseases, uniformity could not have been expected in them, even if the appearances, which they attempted to describe, had been entirely alike. It seems to me, however, beyond a doubt, that the general result of the evidence, which the reports afford, is strongly in favour of my opinion, that pulmonary consumption is, upon the whole, more rare in countries that abound in intermittent fevers, than in those which are free from them. I shall add, that

a gentleman of fortune, and good education, who resides in the neighbourhood of Arbrogath, in Scotland, was kind enough lately to make inquiry, at my desire, concerning the prevalence of consumption and ague in his district of country, among the practitioners of medicine there, and that the information which he received is, that agues have declined, and consumptions have increased within their memory.

Before I conclude this part of my subject, I shall give extracts from some of the reports in Sir John Sinclair's work, in order to shew, in what manner the authors themselves express the fact of the increase of consumptions, and the declension of agues.

"The air is sometimes moist, but generally dry, and the people remarkably healthy. They were formerly much affected with the ague, but are now much subject to consumption."—Parish of Hutton, Berwickshire, Vol. IV.

"The ague has not been so frequent these 2 years * as formerly, but consumptive

* The number in the original is expressed by a figure, which appears evidently to have been intended for 20, or some number between that and 30.

complaints are more common.”—Parish of Earlstoun, Berwickshire, Vol. IV.

“Sometime ago the ague was a very prevalent complaint. It has now in a great measure disappeared, but a disease still more fatal seems to have come in its stead. Consumptions, which formerly were rare, have of late been very frequent, although from the state of cultivation, it should be thought, that the air is much more salubrious.”—Parish of Errol, in the Carse of Gowrie, Perthshire, Vol. IV.

“Some years ago agues were prevalent; of late consumptions have been more common than formerly.—The manner of living, dress, and manners of the people, are greatly improved within these last twenty years.”—Parish of Gordon, Berwickshire, Vol. V.

“Agues were formerly very prevalent, both spring and autumn, but have nearly ceased several years. Consumptions are rather more frequent than formerly among the young, and often seemingly healthy and vigorous.”—Parish of Dron, Perthshire, Vol. IX.

“Within these twenty-five years, a great

many young persons have died of consumption. The ague used to be frequent, but is now almost unknown."—Parish of Tillicoultry, Clackmannonshire, Vol. XV.

"The ague, which was very common about thirty years ago, is now scarcely heard of. But in places where this disorder was most prevalent, and especially in the Carse of Gowrie, it is observed, that young people are now more liable to consumptions than formerly."—Parish of Kinnoul, Perthshire, Vol. XVIII.

It is to be remarked, that the Carse of Gowrie is altogether an agricultural district. The increase of consumption in it, therefore, cannot be attributed to the extension of manufactures. In many of the reports it is mentioned, that the cloathing,* lodging, and food of the lower inhabitants had been lately considerably altered for the better, and in none of them is it said, that those circumstances had been altered for the worse. The increase of consumption, therefore, in Scot-

* It must be mentioned, however, that the improvement of the cloathing consisted in its being made of finer and dearer, but less warm, materials.

land, cannot be ascribed to the cause, which Mr. Weekes has assigned for its increase in his part of Sussex.

In Holland, pulmonary consumption is said by Dr. Cogan,† an English physician, who resided there many years, to be much less frequent than in this country. The reason, he thinks, is to be found in the warmer cloathing, and colder houses of the Dutch. But, as the inhabitants of the fens of Lincolnshire, a country much resembling Holland, seem to be equally free from that disease; and are yet both cloathed and lodged like the rest of their countrymen, it is evident, that only a small share of the exemption of the former can be attributed to the causes, which he mentions. The cause must exist in something common to both, which appears to be the frequency of intermittent fevers. Dr. Harrison, in the publication already cited, also says, upon the authority of information received from a Dutch merchant, that consumption seldom occurs in Holland.

I spoke, in the beginning of this Paper, of

† Dr. Beddoes' Essay on Consumption, p. 74.

the rareness of consumption in the marshy parts of Flanders. Dr. Beddoes has published a letter written to him by the Rev. Mr. Leslie, in which it is said, that whenever the students at the English Academy, in the neighbourhood of Liege, became affected with consumption, they were sent to low, foggy, and swampy places in Austrian Flanders, where in a few months they almost always recovered their health; but that, if they returned to the Academy, they fell again into that disease. Mr. Leslie, to shew that he is not mistaken with respect to the disease, under which the young men laboured, describes its symptoms, from which it is clear, that it was really pulmonary consumption.

Brussels, in the neighbouring province of Brabant, is described by Sir John Pringle, in his *Diseases of the Army*, as being "high, well aired, and healthy;" that is, free from the intermittents and other autumnal diseases, to which our army was subject in the Netherlands. But in the Acts of the Society of

* In his "Observations on the Nature and Cure of Calculus, Scurvy, and Consumption, &c."

Medicine at Brussels, published about ten years ago, phthisis pulmonalis is stated to be one of the most common diseases there.

Berlin is situated in a dry, sandy, and barren country; and, as the chief part of it has been built in modern times, it is not likely, that agues should be generated in the city itself from putrid moisture, and imperfect ventilation, as was formerly the case in London. In the year 1801, nearly five thousand patients were admitted into its principal hospital, of whom only thirty laboured under intermittent fevers,* a proportion, even less than what occurs in the hospitals of London, where agues are now, perhaps, never generated. In 1804, the proportion of agues in the Berlin hospital was much greater, one hundred and sixty-four having been admitted that year. They occurred chiefly in April, May, and June, in consequence, it is mentioned, of a cold and wet spring, and summer, and must have been for the most part mild, since many of them are said to have been cured by gelatine. On the other hand, pulmonary consumption must be uniformly frequent,

* Edinburgh Medical Journal, No. VII.

since one-fifth of the annual deaths is occasioned by it.*

Vienna, according to De Haen, the author of the work, entitled 'Ratio Medendi,' is much subject to intermittents. I have seen an account of the diseases and deaths, which took place there in 1798, from which it appears, that the deaths from consumption did not constitute quite a tenth part of the whole number. But another account,† makes the deaths from consumption at Vienna to be annually one-sixth of the whole mass. The difference between even the latter proportion, and the proportion of deaths from consumption in Berlin, appears to be too great to be accounted for by the difference between their latitude, which is a little more than four degrees.

In Petersburg, the deaths from consumption, notwithstanding the coldness of its climate, are stated by Mr. Makhus, in his work upon Population, to be only one-sixth of the deaths from every cause, a proportion considerably less than the one assigned by

* Edin. Med. Journal, No. VII., Ibid. No. V.

Dr. Woollcombe to Plymouth, from his own observations, this being nearly a fourth. In Petersburg too, many of the instances of consumption are probably very different from those which occur in this country, as a great number of the inhabitants die of pleurisy;* for many of the poor, who labour under the latter disease, must, from the want of proper care, contract large abscesses of the lungs, the deaths from which will be ranked under the head of consumption. With regard to the prevalence of agues there, I have no positive information; but, when it is considered, that the city is built upon a low morassy island, subject to inundations, there is reason to conclude, that they must be numerous.

I have obtained no intelligence respecting the frequency or rareness of consumption in France, or the peninsula of Spain. Dr. Cleghorn, however, has given a most excellent account of the diseases, which occur in

* Mr. Malthus says, that one-fourth of the deaths arises from pleurisy, a proportion which appears to me altogether incredible. See Malthus on Population, p. 215.

one of the Spanish islands in the Mediterranean, Minorca. More than half of this account relates to intermittents, but not a word, I believe, occurs in it concerning pulmonary consumption, from which it may be inferred, that this disease is at least very infrequent there.

Dr. Sequeira, a physician in this place, but a native of Portugal, has informed me, that consumption is more frequent in the high and dry ground in the neighbourhood of Lisbon, than in Alentejo, which is low and marshy, and much infested with intermittents. Dr. Beddoes* mentions, upon the authority of a physician, who had resided two winters in Portugal, that it is common at Lisbon to send consumptive patients to Alentejo.

Dr. Beddoes speaks of the Italians as being much subject to consumption;† but the proofs, which he gives, seem to be all derived from what took place in the bishopric of Trent, a country, from its elevation above the sea and latitude, resembling Germany in climate, more than the southern parts of the

* Essay on Consumption, p. 22. † Ibid, p. 23.

peninsula. Nice and Naples are said by Dr. Pugh, another English physician, to be unfriendly to the consumptive; but both of those places are in other respects very healthy. Consumption is also said by Baglivi to be frequent at Rome, and it is well known that dangerous autumnal fevers often occur there. I expect, however, that the two following observations will lessen considerably, if not destroy, the strength of the objection, which may be derived hence to my opinion. The first is, that as pulmonary consumption occurs perhaps every where, and most commonly lasts at least several months before it proves fatal, presenting, in the meantime, to the physician daily proofs of the insufficiency of his art, a few cases of it in the year will be readily spoken of by him as if they were frequent, if he does not compare his own observations with those made in other countries. My second observation is, that Lancisi says, that the situation of Rome is in itself healthy, as might indeed be supposed from its being for the greater part elevated, and that fevers do not prevail in the autumn, except the Tiber has overflowed its

banks; and that even then they are confined to the lower parts of the city. I have sought for information respecting the frequency of consumption in the Pontine marshes, and those parts of the Milanese in which rice is cultivated, but have not hitherto gained it.

It appears from the writings of Celsus, and the two Plinies, that the Romans were accustomed to send consumptive patients to Egypt. According to Celsus, the advantage of the practice arose from the long sea-voyage, which it necessarily occasioned, and from Egypt possessing a more dense air, "*cælum—densius,*" than Italy, a phrase which I do not clearly comprehend. I presume, however, that the custom arose from pulmonary consumption having been observed to be of rare occurrence in Egypt. In modern times, Mr. Savary, a French traveller, asserts, that consumption is not known there; and Dr. Macgregor has not mentioned it, in his account of the diseases, to which the British army was subject, during the campaign in Egypt in 1801 and 1802. With respect to intermittent fevers, Prosper Alpinus often refers to their existence in his '*MEDICINA*

ÆGYPTIORUM. The same author affirms, that a dangerous fever prevailed, in his time, every autumn in Alexandria, which he attributes to the putrid mud, in the subterraneous receptacles for the water of the Nile in that city. According to Dr. Macgregor, however, Alexandria was not unhealthy in the autumn of 1801; but he makes frequent mention of the troops being widely affected with intermittents during that season, in other parts of Egypt. These, indeed, were not very fatal, nor even so numerous as might be expected, considering the immense inundation of the country, the reason of which is probably the following. Large collections of fresh water do not seem to generate ague. Thus, the persons who navigate the lakes in Canada remain healthy, while those who live upon their banks and edges are extremely subject to that disease. But a great part of Egypt is in the state of a lake in July, August, September, and October, the months during which intermittents are chiefly prevalent, and most dangerous, in countries to the north of the tropic of cancer, and the soil of the country in general is not

reduced to the state of a swamp, before November, at which time intermittents have already begun to decline, with respect both to frequency and danger, in all other places, which have the same northern latitude. In Egypt, they continued with our army in some degree till May, when they entirely disappeared, probably from the moisture of the earth having been then exhausted. It seems, therefore, that the cold of the winter in that country, though it lessens considerably the production of intermittents, is not sufficiently great to put a stop to it altogether, and that the deficiency of intensity in their opposition, at any one time, to pulmonary consumption, is compensated by the length of its duration.

Aleppo, which is situated in the higher part of Syria, is said by Dr. Alexander Russell, Dr. Patrick Russell, and Mr. Volney, to have a very pure and dry air, and to be unfriendly to the consumptive. Intermittents, indeed, frequently occur there; but they are mild, and perhaps are occasioned by some circumstances, related by the two former authors, which affect only a part of the

city. According to Mr. Volney, consumptive persons are sent for the recovery of their health, from Aleppo, and other elevated parts of Syria, to the sea coast, where intermittents, he says, of the most malignant kind prevail. This is the fourth instance which I have mentioned of such a practice, and it is hardly possible to believe, that it would have arisen in England, the Netherlands, Portugal, and Syria, unless it had been seen, that consumption is less frequent in swampy, than in dry and elevated situations.

In Bengal, where remittent and intermittent fevers prevail in a great degree, pulmonary consumption, as I have been informed by an eminent physician, who exercised his profession many years in Calcutta, is scarcely known. In Bombay, which is nearly four degrees to the south of Calcutta, but not so much infested with fevers, pulmonary consumption must not be very rare, as Dr. Macgregor has mentioned, that about six cases of it occurred every year in an European regiment stationed there, to which he was surgeon.*

* Edinburgh Medical Journal, vol. i. p. 288.

I pass now to the western parts of the world.

Dr. Walsh has given, in the 87th Number of the London Medical Journal, some account of the diseases in Canada. He says, that in the upper part of the country, particularly on the borders of the lakes, intermittents are very frequent; but he makes no mention of pulmonary consumption, though he speaks of another disease of the chest, pleurisy.

New Hampshire, on the eastern coast of America, occupies nearly the same degrees of latitude as Upper Canada; but, from its being less elevated, perhaps also for other reasons, enjoys a milder temperature of air. In Portsmouth, however, its capital, according to accounts published by Dr. Spalding, a physician there, nearly one-fifth of the deaths are produced by pulmonary consumption. Dr. Spalding speaks of diseases only as causes of death; no precise notion, therefore, can be obtained from what he has published, whether ague is frequent, but it may be concluded that it is not so, as only two

deaths from it occur in the accounts of eight years.*

Rhode Island is so free from intermittents, that the rich inhabitants of South Carolina frequently go thither in the summer to avoid the diseases of their own state. But, I have been informed by an American gentleman, who had resided both in Rhode Island and in this country, that consumption appeared to him to be even more frequent there than it is here.

The deaths from consumption, in the first eight months of 1807, are said to have been at New York one-fifth, and at Philadelphia, during the same time, one-sixth, of the whole numbers which occurred at those places.† As Philadelphia is not a degree to the southward of New York, the difference between them, with respect to the production of consumption, cannot be attributed to this cause, but must, I think, be referred to the difference in the frequency of intermittents in those places, which is known to exist.

In the year 1798, I received a letter, upon

* London Medical Journal, Nos. 65, 66, 71, and 95.

† Edinbugh Medical Journal, No. XVIII.

the subject of pulmonary consumption, from an acute, and learned friend, the late Dr. James Currie, of Liverpool, and shall here give an extract from it, relative to the Western Islands, which are situated nearly in the same latitudes with Philadelphia and New York. "When I was at the Azores, nearly twenty years ago, I remember Mr. Graham, the English Consul, observing on the general salubrity of those happy islands, but stating that they were infested with consumption.— I have marked this in my Journal. The Azores enjoy, perhaps, the happiest and the most equable temperature in the world." We may hence judge of the soundness of the opinion entertained by Dr. Beddoes,* and others, that the frequency of consumption in Great Britain arises from the variableness of its climate.

I can state from personal knowledge, that consumption is rare, and intermittents exceedingly frequent, in South Carolina. I refer here, however, to what happens to the white inhabitants, for negroes are affected

* Essay on Consumption, p. 149.

very differently from the former race by causes of disease. For example, if negroes are moderately well fed, and properly treated in other respects, they will retain their health, though labouring daily in rice swamps, where their masters would almost infallibly perish; but, on the other hand, they will contract dangerous inflammatory diseases, in circumstances which prove harmless to whites.

Bermuda possesses the same latitude as South Carolina, but its air is much more temperate, being neither so hot in summer, nor so cold in winter, and its healthfulness has been a theme of praise with poets. It is indeed very free from intermittents, as I have been informed by a gentleman, who filled a public office there several years; but I was told a considerable time ago, by the late Mr. John Savage of Brompton, in the neighbourhood of London, a native of Bermuda, who had resided many years in South Carolina, that, notwithstanding the general salubrity of the former place, consumption was much more frequent in it, than in the latter.

As Madeira is in the same latitude with Bermuda, and is also free from intermittents,

I should be ready to conclude, that pulmonary consumption frequently originates there. Dr. Beddoes asserts this to be actually the case; but, as that author often draws stronger conclusions than his premises will strictly admit, I cannot altogether rely upon the justness of his opinion respecting this matter.

Hillary says, in his account of the diseases of Barbadoes, that since that island was cleared of its woods, intermittents have been very rarely or never seen in it, except they were brought from the neighbouring islands. On the other hand, it appears from his writings, though he does not expressly mention it, that pulmonary consumption is not uncommon there. For in one page he says, "asthmatical and phthisical people suffered much from the catarrh," and in another, "asthmatic and consumptive patients suffered much from this catarrhus fever, and it proved fatal to some of them." I have received information of the same import from a physician now resident in that island; he added, that his mother, who had been born in it, and had never been out of it, died of pulmonary consumption.

Jamaica, it is well known, is much subject to remittent and intermittent fevers, and I have been informed by several persons who resided there long, that consumption is a very rare disease among the white inhabitants. Dr. Hunter, in his observations on the diseases of that island, also mentions, that consumption rarely originates there.

The facts, of which I have just finished the relation, establish beyond doubt, that in some places where agues are prevalent, pulmonary consumption is comparatively rare, and that in others, while agues have diminished, consumption has become more frequent. These concurrences also are too numerous to allow us to suppose, that they are merely accidental. It must therefore, I think, be admitted as a general truth, that the frequency of intermittent fevers, in any country, renders the instances of pulmonary consumption in it less numerous, than they would otherwise be. This truth may be obscured by various circumstances, and modified by

others. I have, for example, already stated, when speaking of a hilly parish in Scotland, in which both ague and consumption were said to be frequent, that the latter disease might be the product of its own situation, while the former was contracted by some of the inhabitants, during visits to low and wet lands in its neighbourhood. No valid argument, therefore, can be formed against the justness of my opinion, from the occurrence of both diseases in a high country, which borders upon one that is low, and productive of agues. Any such disturbance, however, of the common order of things will be almost entirely confined to the appearance of agues in the high country; for the residence of only a day or two in a fenny district, during the autumn, is often sufficient to give a most obstinate intermittent, whereas consumption, when induced by climate, seems to require at least several months for its production.

Many circumstances, besides climate, have been mentioned by authors as tending to produce consumption. These perhaps may all be brought under the following heads,

1. Bodily weakness, however occasioned,

except it be accompanied, or quickly followed, by some specific disease different from consumption. 2. The introduction of hard substances and acrid vapours into the air-cells of the lungs, by means of inspiration. 3. Unusually frequent and violent action of the muscles of respiration. 4. Mechanical obstructions to the proper dilatation of the chest. 5. Mechanical injuries of the contents of the chest, under which I comprehend abscesses in the lungs and their membranes, arising from acute inflammation. 6. Frequent and long exposure to cold and moisture. These circumstances may probably occasion instances of pulmonary consumption to appear in any country, however little disposed to give origin to them, and will multiply their number in places, which are favourable to their production. The existence of such causes must always therefore be taken into account, when a comparison is made betwixt two places, with respect to their proneness to generate consumption.

On the other hand, the tendency of the inhabitants of any country to pulmonary consumption, from the nature of its climate

and soil, may be considerably diminished in certain descriptions of them, by the particular circumstances in which these are placed. Dr. Withering, for instance, has stated in a letter to Dr. Beddoes, which was published by the latter in 1793, that butchers, and the makers of catgut, are exempt from consumption. To these classes Dr. Beddoes* has added, from information otherwise obtained, soap-boilers, the fishermen, and the fish-wives as they are called, who live in the neighbourhood of Edinburgh, and the coal-boatmen of Newcastle.

According to the accounts which he gives of the modes of life of several of these descriptions of persons, they agree in labouring very hard in open, though not always pure air, and in eating a considerable quantity of animal food. Dr. Beddoes had been led by theoretical considerations to suppose, that seamen are also little subject to pulmonary consumption, and, some time afterwards, Dr. Trotter, one of the physicians to the Fleet, mentioned in his Medical Essays, that the supposition was correct. A great many con-

* In his Essay on Consumption.

sumptive sailors, however, apply for admission into the London Hospitals, and Dr. Lind attended, in the course of two years, three hundred and sixty seamen labouring under consumption, which, in only a fourth of the number, could be attributed to mechanical injuries of the chest. Besides, our sailors go much more frequently into climates that are warmer, than into those which are colder than our own, and may in this way have their tendency to consumption made less, than that of their countrymen in general. They are too, when collected in great numbers in a single vessel, and the observation of Dr. Trotter relates only to those in ships of war, placed in circumstances, which, according to Dr. Lind, and Dr. Blane, have a tendency to produce ague, and may from this cause alone become less liable to consumption, than many other classes of men.

The Highlanders of Scotland, though few of them, I believe, now consume much animal food, seem also to be more exempt from pulmonary consumption, than most of the other inhabitants of Great Britain. I

conclude this to be the case from several reports in Sir John Sinclair's work, though it is not directly expressed in any of them. Their exemption, if it really exists, may, I think, be ascribed, in part at least, to the following circumstances. "It is not uncommon, I have been frequently told", says Dr. Adam Smith,* "in the Highlands of Scotland, for a mother, who has borne twenty children, not to have two alive." But the few, that do survive, must have been originally well fitted to resist the operation of causes of debility, and their bodies, as they advance towards manhood, must be rendered still more hardy by their time being almost wholly spent in the open air, from the nature of their chief employment, that of tending cattle upon their hills.†

* Wealth of Nations, Vol. I. p. 97. Dr. Short remarks, that married women living in towns bring forth children more frequently, than those in the country. Observations on Bills of Mortality, p. 265. The more frequent deaths of young children in towns, than in the country, explain this fact, as the mothers in towns are in consequence sooner in a fit state for breeding. The fruitfulness of the Highland women must in a great measure depend upon the same cause.

† From a contrary cause, the young of rich families

Before I entirely conclude this part of my paper, I shall venture to produce an argument

very frequently die of consumption. For many feeble children of this class are by great care preserved during their tender years, who, after the age of puberty, perish from attacks of that disease, which had been induced or favoured by their original weakness. Accordingly, Sydenham, Hoffman, Boerhaave, Van Swieten, and Cullen, who exercised their profession principally among the wealthy, have said, that consumption occurs chiefly between the ages of sixteen or eighteen, and thirty-five or thirty-six years. It may be supposed indeed, that these authors were swayed by the authority of Hippocrates and Celsus, who had mentioned, that consumption for the most part takes place from the eighteenth year to the thirty-fifth. But the same objection cannot be made to the testimony of another physician of the rich, the elder Dr. Heberden, since he expressly states, that every thing, which he has said in his commentaries upon the history of diseases, was derived from his own observation, and he affirms, that pulmonary consumption is chiefly fatal to persons, whose ages are between eighteen and thirty years, making therefore the consumptive period of life of less extent, than had been assigned to it, I believe, by any preceding writer.

On the other hand, it appears from the statement of Dr. Woolcombe, that of the poor of Plymouth, who die of pulmonary consumption, there are more than twice as many above the age of thirty years, as there are below it, and even nearly as many above the age of forty, as there are below that of thirty. I think it probable, that similar facts occur in London; but, as I have not preserved any account of the ages of the

from analogy, in support of the principal position, which I have hitherto maintained.

Pulmonary consumption and intermittent fever are by far the most destructive of the diseases, which are incident to man. It is agreeable, therefore, to the general rule,

consumptive poor, whom I saw while physician to the Finsbury Dispensary, and while I prescribed for the out-patients of St. Thomas's Hospital, for not many labouring under consumption are admitted into that Hospital, I cannot speak with much confidence on this point.

After the rich have lost their originally feeble, or those who had rendered themselves so by the follies of youth, few of them become affected with consumption, because few of them are exposed to the action of the causes, which are known to induce it. Matters proceed very differently with our poor. From the hardships of their situation, they rear a much less proportion of their children than the rich; but such as they do rear are, for the most part, those who were originally the strongest, and therefore the least liable to become consumptive in their youth. But, as life advances, they suffer from unhealthy trades, from frequent and long exposure to cold and moisture, and from severe labour unattended with a due quantity of nourishing food, to say nothing of the gross and exhausting debauchery of many of them. It is not therefore surprising, that a great number should be seized with consumption, at periods of life, during which the rich are nearly free from it

which we see observed, with respect to the distribution of good and evil in the world, that these two immense causes of death should no where occur together in a high degree. That this is really the case is already, in great measure, established. For it has long been known, that pulmonary consumption is much more common in cold, than in warm climates, but that intermittents never originate during the presence of frost, and are frequent and dangerous, when the other circumstances are equal, which are requisite for their production, in proportion to the heat that prevails. It is surely then natural to infer, without the further knowledge of facts, that pulmonary consumption and intermittent fever are opposite diseases.

If it be now asked, in what manner do intermittents lessen the frequency of consumption? my answer is, that their operation, probably, here is chiefly a consequence of the more general fact, that the existence of one disease in the human body, or even a tendency to one disease, often renders it less susceptible of another disease, than if

it were free from all morbid impressions. It may be objected, however, to this explanation, that intermittents rarely affect a very great proportion of the inhabitants of any country, during even part of a year, and seldom remain with any of them a whole year or more, and consequently, that the cause assigned is inadequate to the production of the effect, which is supposed to flow from it. To this I reply, that the causes of no disease affect at once such large numbers of men, and at the same time make so lasting an impression upon the bodies of individuals, as those of ague. In maintenance of the first proposition, I shall mention, that the inhabitants of a country infested with ague, though they may be apparently in perfect health, are often, during the season of that disorder, attacked with it, almost immediately after fatigue, errors in diet, long exposure to the damps of night, or being wetted with rain, while similar circumstances, at the same season in the same country, produce no such effect upon strangers, during the first eight or ten days* after their arrival. The former,

* This has been found to be the shortest time, that

therefore, must have previously had a disposition to ague, though demonstrated by no external signs; and if this unknown state be capable of being changed, by very slight circumstances, into an evident and great disease, it may readily be thought sufficient to resist the action of the causes of another disease. To prove the second proposition, I may say, that persons, who have once contracted an ague, are sometimes subject to a return of it in the spring or autumn, or both, for several years, though living in countries where agues do not originate, and that agues often do not appear till the spring, though their causes were applied to the body in the preceding autumn. I have known three instances of this latter fact myself, and I have

intervenes in South Carolina between the attack of an intermittent, and the application of its cause. In this country, from its less heat, a greater interval perhaps occurs. Sir John Pringle, in his *Diseases of the Army*, page 178, gives a communication from one of his correspondents, which leads to the conclusion, that a person may be seized with an intermittent, immediately after exposure to the exhalations from a marsh. But this appears to me, from the fact mentioned respecting South Carolina, to be very erroneous.

been informed, that similar instances frequently occurred in the spring of 1810, among the officers and soldiers of the British army, who had been in Zealand in the autumn of the year before. It seems, indeed, very probable, that the intermittents, which occur in the spring, always arise from impressions which were made the preceding autumn, as I know, that in South Carolina strangers visit the unhealthy parts of it with entire impunity, in the spring, though the inhabitants themselves are subject to vernal intermittents.

Whether a person, affected only with a disposition to pulmonary consumption, is more capable than others of resisting the attacks of ague, I have not hitherto learned; but Dr. Caldwell, of Philadelphia, has observed, that those who labour under the former disease are little liable to the latter.* The consumptive individual, however, while he thus resists the full operation of the causes of ague, must yet be acted upon by them as other persons are, and this action, though not followed by its ordinary apparent

* London Med. Rev. for Oct. 1801.

effects, may be sufficient to impede, and ultimately to arrest, the progress of his disease.

Not only do pulmonary consumption and ague appear to resist one another, but each of them is connected with several diseases, to which the other frequently seems opposed.

The affinity of pulmonary consumption with scrophula is so evident, that many physicians have regarded them, as being, for the most part, only different forms of one disease. Scrophula, as well as consumption, is rare in warm climates; but I do not recollect seeing mention made, by any author, of its being also rare in cold climates, where agues are frequent. I remember, however, that the external marks of scrophula appeared to me to be less common among the inhabitants of Holland, than among those of this country, though, from the fair skins, light coloured hair, and blue eyes, of the former, that disease might be expected to be frequent with them.

Consumption has so far an affinity with continued fever, that they often prevail in the same country, while, on the other hand, the latter disease is rare, where agues are numerous. According to Sydenham, there was no proper continued fever in London, from 1660 to 1664, and from 1677 to 1684, during which times intermittents were extremely frequent. Mr. Weekes, of whom I have already spoken, says that, since intermittents have become rare in his neighbourhood, typhus has become more common. In Sinclair's Statistical Account of Scotland, there are reports from forty-one parishes, in which mention is made of the greater or less frequency of fever and consumption, but not one report, I believe, mentions the frequency both of ague and fever.

It will perhaps be objected to what I have said here, that a continued fever sometimes terminates in an ague. I shall therefore mention, that I have seen only one case, in which this apparently occurred, and that I afterwards found, by enquiring more particularly into the previous history of the disease, that it had been, from the beginning, a remittent.

Besides, there are places in Scotland, and I suppose also in England, in which an ague is never known to appear, unless it has been brought thither, though common fever is often prevalent. I conclude, therefore, that if an ague has even been really observed to follow a continued fever, this has been in consequence of an impression made upon the patient, by the causes of the former disease, before the latter appeared, and not from any affinity between them.*

The plague, though undoubtedly a distinct disease from the continued fever of this country, has yet so many resemblances to it, that experienced physicians have oftentimes been unable to determine, to which of the two a particular case of disease has belonged. They likewise agree in this, that both great heat and great cold commonly put a stop to them; and there are certain facts, which seem to render it probable, that they further agree in both being opposed by intermittents. Van

* Dr. Willan remarks, that no more analogy subsists between an ague and a malignant fever from contagion, than between small-pox, measles, erysipelas, rheumatism, and internal inflammation. Pref. to Rep. P. V.

Swieten says,* that so opposite has the nature of tertians been observed to be to the plague, that, whilst all other sporadic diseases readily passed into that distemper, a tertian never degenerated into it. In Egypt, the plague constantly ceases, as an epidemic, about Midsummer, the time at which intermittents begin to be frequent. At Aleppo, which is nearly as hot as Alexandria, but where intermittents are less prevalent, it lasts, for the most part, about six weeks longer, and sometimes, as in the year 1761, while Dr. Patrick Russell was there, continues as an epidemic during the whole of the summer. According to Mr. Jackson, in his Account of the Empire of Marocco, the plague, which generally terminates in West Barbary about Midsummer, raged there with great violence, in 1799, throughout the summer and autumn. West Barbary lies within nearly the same parallels of latitude as the Delta of Egypt, and is, I believe, fully as hot. But its climate is said by Mr. Jackson, in one part of his book† to be

* Tom. ii. p. 525.

† P. 10.

healthy, and invigorating; and in another,* where he treats of the diseases of the country, no mention is made of intermittents.

If these facts be esteemed of any weight, they will probably be also thought to furnish one reason for the greatness of the plague, which occurred in London in 1665. By Morton's account, intermittents began to be unusually prevalent in London, in 1658, and Sydenham found them so, when he began to practise medicine here in 1660. Their violence continued till the summer of 1664, when it abated considerably. Morton indeed says, that the autumn of 1664 was very healthy. The cold of the following winter, which was exceedingly severe, would tend still further to lessen the disposition to intermittents. Accordingly, in the spring of 1665, a continued fever appeared, which was regarded by Sydenham as very different from the remittent, which had for several years prevailed. When therefore the plague began in May, it found the inhabitants unusually free from impressions occasioned by the causes of ague, and these impressions

* P. 151.

must have been only in a slight degree produced during the summer and autumn, as both Sydenham and Hodges remark, that London, while the plague prevailed, was in other respects very healthy.* During that

* It has often been observed, that places, in which the plague prevails, are otherwise unusually free from disease. This has been attributed to some influence exerted by that distemper, but, in my opinion, improperly, since it is now known, that it is never contracted, unless through means of effluvia from the bodies of those, who labour under it, and that these infect only a very small portion of the atmosphere, which, consequently, is still as liable to suffer alterations fitted to produce other diseases, as if the plague did not exist. When, therefore, few other diseases occur with the plague, this is not to be considered as an effect of the presence of that disorder; on the contrary, the absence of other diseases is to be regarded as a preceding fact, and as one of the causes of the prevalence of the plague. In Europe, these diseases are almost entirely intermittents, and others akin to it; since, in this quarter of the world, the plague appears as an epidemic, only in summer and autumn.

As it has been said by Hume and others, that the fire of London in 1666, and the improvements which have since taken place, are the reasons that the plague has never occurred in it since 1665, I shall state several facts, which seem to shew, that this opinion is not well founded.

1. The fire consumed only a fifth of the town, and this contained the houses of the wealthiest inhabitants.

year, however, the article "consumption," was uncommonly great in the general Bill

The filthiest parts of it, the Borough, Wapping, Whitechapel, Clerkenwell, St. Giles's, and the purlieus of Smithfield, were untouched. Two of the previous plagues of the 17th century are said to have broken out in Whitechapel, and that of 1665 in St. Giles's.

2. Bristol, the only town in England, besides the capital, that formerly possessed much foreign trade, used frequently to be visited by the plague; but, though it was purified by no great fire, and its improvements commenced much more lately than those of London, it has, notwithstanding, remained equally free from that disease.

3. The Dutch long preceded us in cleanliness, and still excel us in that quality, as far as their streets and houses are concerned. It appears, indeed, by Sir William Temple's account of that people, that they were as cleanly, in these respects, in his time, as they are at present. But the plague was as frequent among them, though perhaps not attended with the same mortality, in the 17th century, as among ourselves, and they were visited by it upwards of forty years after it had ceased to appear here. On the other hand, Cracow is described by Mr. Wraxall, an English traveller, as being, about thirty-five years ago, in as filthy a state, as London could have been in before the great fire; yet no plague has, I believe, occurred there for at least a century.

4. It does not appear that the fire of London, and the immediate consequent improvements, lessened the frequency of the two great diseases, which evidently arose from its filth and moisture, intermittent fever and

of Mortality, notwithstanding that a very large number of the inhabitants, Sydenham

dysentery. The former, which had decreased considerably two years before the fire, returned in great force eleven years after it, and was very prevalent for eight years. Dysentery increased considerably after the fire, and suffered little diminution, till near the end of the century. The improvements, therefore, of London cannot be supposed to have preserved its inhabitants, during the same time, from the plague.

5. The plague was not known to the Greeks and Romans, if the silence of their authors can be admitted as proof, until several centuries after the commencement of the Christian æra, though they possessed the places, in which it is now almost constantly present; and it is still unknown in the immense countries of India, China, and America. If filth were its cause, these exemptions could not possibly have occurred. Parts of several sea ports in North America are described as being filthy in an extreme degree, and to this circumstance the physicians of that country commonly ascribe the rise of the yellow fever, a very different disease from the plague.

6. Though the plague used to appear in London, first amongst the poor, from their associating with the sailors of infected vessels, and their being employed in removing and unpacking the goods, in which it might have been brought; yet, wherever it has prevailed, when the exposure to contagion was equal, the cleanly have been found as liable to it as the filthy, in like manner as they are equally liable to be affected by the contagion of the small-pox, measles, scarlet fever, and hooping-cough.

says two-thirds, which seems, however, altogether incredible, considering that London

It appears to me, therefore, that our long freedom from the plague has been entirely owing to the means, which have been employed by our rulers to prevent its admission ; and I pray, that they may never be induced by interested traders, or speculative reasoners, to diminish the guards, which have hitherto proved our security against so terrible an evil. Such guards are even more necessary here than in the other countries of Europe : since, from our habits of freedom, it must always be more difficult to prevent the spread of the disease, after it has once appeared among us, than it would be among those nations, which have been long enured to the rigours of a military government.

Were the plague ever to appear again in London, the less crowded state of its population, and our knowledge of the fact, that its production is unconnected with any unhealthy state of the air, would, independently of the measures adopted by the government, tend to lessen its extension. On the other hand, there is a circumstance arising from the long absence of the disease, which might possibly render the inhabitants of the present day more liable to contract it, than those of the 17th century, independently of their freedom from agues.

Men differ considerably in their propensities to diseases, and this difference often descends from parents to children. When, therefore, a country is much infested with a disease, which frequently proves mortal, such of the inhabitants, as are chiefly liable to it, are for the most part destroyed, and a race is in this way gradually formed, which is the best fitted to bear the pre-

was then supposed to contain more than 400,000 persons, were absent several months; and that, in proportion as men perished by the plague, fewer were left to perish by consumption. It is probable, therefore, that the plague is in cold climates, like continued fever, often followed by those diseases of the chest, which are called, in common language, rapid declines. Hodges says, that one of the valent distemper. Thus Englishmen seem to be born with a less disposition to pulmonary consumption, than the inhabitants of many other countries; for the circumstances, in which they are placed, have so great a tendency to produce this disease, that such of them as have a constitutional propensity to it commonly die, before they have children; and hence it is, that the natives of warm climates, who have resided here from their childhood, are more apt than our own people to fall into it. Upon the same principle is in a great measure to be explained the fact, that the small-pox, measles, and hooping cough, are generally very fatal, when they appear in a country for the first time, or after a very long absence. To return to the plague, those who formerly escaped it in London, after being exposed to infection, or who recovered after having laboured under it, must have been thus fortunate, principally in consequence of something in their original conformation, which, it is probable, would often be transmitted to their immediate descendants, but would be lost from mixture of families, and other circumstances, in a few generations.

diseases, under the semblance of which the plague sometimes concealed itself, was a slow hectic fever.

The deaths from apoplexy and palsey, in London, according to the Bills of Mortality, increased considerably after the the frequency of agues in it began to diminish; and I have reason to believe, that the two first mentioned diseases are much less common in South Carolina, than they are now in this place. This, however, may arise from a difference in the heat of the two climates, and not from any difference in respect to the prevalence of intermittents. It may be mentioned, likewise, that another disease of the head, madness, is also much less frequent in South Carolina, than it is in this country.

I pass next to those diseases, which have an affinity with ague.

Induration and swelling of the liver and spleen, and jaundice, are well known as consequences of ague.

Dropsy is another well-known consequence of ague. Whenever I have observed dropsy of the abdomen to arise from this cause, which however, has not been often,

swellings of the lower extremities have always preceded it. Sir John Pringle remarks, that the dropsies, which occurred after ague in the Netherlands, generally began at the feet, and rose gradually to the belly. Sydenham says, without any reference to causes, and without any restriction, that ascites is preceded by swellings of the feet. There is no doubt of his having committed a mistake here, with regard even to the dropsies of his own time; for Willis, his cotemporary, mentions, that ascites is sometimes not attended with any external swellings. But, on the other hand, it must be granted, considering his general accuracy in the description of diseases, that he relates what most commonly happened. The case, however, is very different at present; for I have found, that in by far the greater number of instances of ascites, which occur now among the poor of London, the swelling of the belly precedes that of the skin. It follows, therefore, that, as the proportion of deaths from dropsy has not decreased in the Bills of Mortality since Sydenham's time, though ague has nearly vanished, the

other causes of that disease must have increased here, the chief of which appears to be the intemperance of the lower people, with respect to spirituous liquors. I may mention, in confirmation of what I have said concerning ague being formerly the great cause of ascites in London, that of the three cases, which Sydenham relates of it, two arose from intermittents. Of the cause of the third, he says nothing.

Dysentery is universally acknowledged to be nearly allied to intermittent fevers. It seems to occur, however, in its greatest force, when intermittents are less frequent than usual. Thus Degner, in his account of the epidemic dysentery at Nimeguen, in 1736, makes no other reference to the presence of intermittents, than that the former disease sometimes observed a tertian period; and during the uncommon prevalence of dysentery for several years in London, in the time of Sydenham and Morton, intermittents, according to those authors, were much less frequent, than they had been some years before. The two diseases differ, besides, in this, that intermittents are seldom,

if ever, communicated by contagion,* whereas dysentery is frequently propagated by that means, though apparently only among those, who have previously contracted a disposition to ague. What, therefore, is

* Two celebrated physicians, Dr. Cleghorn, and Dr. Fordyce, have maintained, that intermittent fever may be communicated by one person to another, but both perhaps upon insufficient grounds. Dr. Cleghorn says, that the persons who were most conversant with those, who laboured under intermittents in Minorca, were the most liable to contract the disease; but, as he admits that the former were, at the same time, exposed to the influence of the circumstances, which had induced the disease in the latter, the justness of his observation may be questioned. Dr. Fordyce thought, that continued and intermittent fevers were one disease differently modified, and might hence have been too easily led to believe, that the latter are also contagious. It is certain, at least, that Dr. Lister, in the course of seventeen years, and myself, in that of eleven, during which we have attended in-patients at St. Thomas's Hospital, where many cases of ague are still admitted, have never observed a single instance there of its being communicated by one person to another, though we have been attentive to this matter, in consequence of what we were told respecting it by Dr. Fordyce. The situation of Charlestown, in South Carolina, was well fitted to determine this point, for it gave rise to few intermittents itself, and many were brought to it from the neighbouring country; but there, I never knew it even suspected, that they were contagious.

common in the causes of the two diseases seems, in the production of dysentery, to be modified by other circumstances, the principal of which appears to be a large production of putrid vapour from animal substances; since, in temperate climates, violent epidemic dysenteries have, for the most part, if not always, arisen in towns, prisons, or camps, though they may have afterwards extended to the country. Willis says, that dysentery was commonly regarded in London as an endemic disease. When, therefore, Sydenham and Morton speak of its being epidemic during certain years, they can only mean, that it was then unusually frequent. This is confirmed by the Bills of Mortality, for it appears by them, that the deaths from dysentery were very numerous, both before and after the epidemic, which those authors describe; and it may be mentioned in farther proof of the same point, that Morton makes the epidemic to commence three years sooner than Sydenham. It seems to follow also from the facts which have been mentioned, that a less degree of the disposition to ague, when assisted by copious vapour from putrid

animal matter, is requisite for the production of dysentery, than for that of ague itself; but that, when the causes of ague are so far increased as to render it very prevalent, the production of dysentery, instead of being correspondently increased, is commonly, if not always, diminished. The deaths from dysentery in London, agreeably to the Bills of Mortality, began to decline about the end of the 17th century. In the beginning of the last, however, they were still about eleven hundred annually. The decline proceeded, till at length, at the end of the century, all the deaths, which could be imputed to dysentery, probably occurred in old cases of it, which had been contracted in distant places.

I shall, in the last place, remark upon this disease, that, as it cannot be mistaken by the most ignorant, we may derive a better proof of the former tendency to intermittents in London, from what is mentioned in the Bills of Mortality respecting it, than from any thing said in them about intermittents themselves, as the latter must have been commonly confounded with continued fever, when they occasioned death.

The disease, termed bilious chol^{ic} by Sydenham, including its highest degree, ileus, has a strict relation to dysentery. For, according to that author, it was unusually frequent in London, during the years in which dysentery was most prevalent ; it appeared chiefly at the same season ; it began with the same febrile symptoms ; and it sometimes attacked persons, whom dysentery had just quitted. It is probable, therefore, that inflammation, of the kind at least which requires copious bleeding for its removal, no more forms an essential part of this disease, than it does of dysentery. Pringle, however, thinks otherwise, and blames Sydenham's practice as little suited to cure the inflammation, which he supposes to exist. But, as it does not appear, that he had ever seen this disease, while epidemic with dysentery, his criticism seems misapplied, especially as Cleghorn expressly confirms Sydenham's account of it, from observations which he had made himself in Minorca. The article of " Chol^{ic} and Wind," in the London Bills of Mortality, which very probably included deaths from acute inflammations of the bowels, when

these did not arise from hernia, or any other visible cause, from 1657 to 1728 more frequently exceeded, than fell short of, a hundred. In 1729, it received the addition of "Twisting of the guts," but was little increased by it. In 1734, both were added to "Dysentery." The aggregate article soon began to decrease rapidly, and at length became so small, that, from 1780 to 1800, not more than eight or ten deaths were, upon an average, annually included under it. The deaths, therefore, from cholera, if any, must, during that time, have been very few.

Cholera, when not arising from errors in diet, is spoken of by almost every author who writes upon it, as if it depended entirely upon the sensible qualities of the atmosphere. But Pringle classes it, as well as intermittents and dysentery, among the frequent distempers of low and swampy countries; and Cleghorn remarks, that it sometimes has regular paroxysms like a tertian, and frequently attends that disease. Sydenham treats of it, not only as a frequent disease in London, but as one, in which death often

took place in twenty-four hours. On the other hand, in the course of more than twenty years extensive practice of medicine among the poor of this city, the class of its inhabitants the most subject to ailments connected with states of the air, I have seen but few considerable cases of cholera, and only one which proved fatal. Death, too, did not here occur, till several days after the disease had declined, and probably would not have taken place, if the patient had not been feeble, when attacked with it. Cholera, therefore, must also have greatly decreased, since Sydenham wrote. The same inference may be made from the Bills of Mortality, if Short's observation be just, that "Vomiting" in them means cholera; for the deaths under that head in 1668 were ninety-five, and in 1669, a hundred and ten; whereas, in the Bills of the last twenty years of the following century, they never exceeded four, and frequently the article was wanting.

It is said by Sydenham*, that scurvy is sometimes induced by a quartan, and by

* P. 85.

Boerhaave*, more generally, that intermittents sometimes terminate in it. Van Swieten also mentions†, that scurvy is sometimes a consequence of ague, and Lind says, that intermittents in a particular manner dispose the constitution to it‡. The same author adds§, that a tertian or quartan sometimes accompanies it, without either disease being affected by the other. Lastly, Morton, Van Swieten, Lind, and Pringle, remark, that it occurs more frequently in marshy situations, than in those which are dry. With respect to its relations to other diseases, besides intermittents, Pringle mentions that, when other circumstances are equal, dysentery prevails most among such as are scorbutic; and Lind informs us, that the scorbutic are not liable to be seized with infectious fever||, and that, when they are seized with it, the scurvy either goes off, or becomes milder, though it almost certainly returns with increased violence, after the fever has

* Aph. 753.

† Tom. II. p. 522, and III. 599.

‡ On Scurvy, p. 130. § P. 507. || P. 252.

ceased*. It appears from the writings of Sydenham and Willis, and the Bills of Mortality, that scurvy was formerly a frequent disease in London. Our present exemption from it is, no doubt, to be almost wholly ascribed to the kinds of food which we now use; but still some part of it must, I think, be attributed to our freedom from ague.

The affinity of ague with most of the diseases, of which I have lately spoken, is generally known; but there is a connexion between it and another class, the inflammatory, which I do not recollect having seen expressly mentioned in books, though proofs are to be found in them of its existence.

I was told nearly forty years ago, by my first teacher in medicine, the late learned Dr. Alexander Garden, who then exercised his profession in South Carolina, that, in direct contradiction to every theory of diseases which he knew, he had found, that those who suffered severely in the autumn, from intermittents, were the most liable to pleurisy in the spring. Dr. Chalmers,

* P. 307.

another physician of South Carolina, has said,* that nothing more frequently happens in that country, than the accession of an intermittent, a day or two after the removal of a pleurisy. In the year 1779, I saw the remark of Dr. Garden confirmed, in a regiment of soldiers, stationed in Guelderland, part of which had been quartered the preceding autumn in Zealand. In a report made by Dr. Blane, Dr. Borland, and Dr. Lempriere, to the British Government, in October, 1809, on the sickness of our troops in Zealand, it is mentioned, on the authority of the inhabitants, that such of our soldiers, as had suffered from intermittents in the autumn, would run the risk of being cut off by inflammatory diseases in the winter and spring. No mention, indeed, is made of the particular kinds, which would then prevail; but what is said of their fatality seems to shew, that inflammations of the chest were chiefly referred to; and at any rate it is certain, that these diseases must have been included under the general term, inflammatory. Dr. Huxham says, in his Essay on

* Essay on Fevers, p. 57.

Fevers, that sometimes intermittents are very rife,* and contemporary with epidemic pleurisies and peripneumonies. Cleghorn remarks, that, in Minorca, pleurisies are generally the chief among the vernal epidemics, as tertian intermittents are constantly among the autumnal†. Lastly, Mr. Weekes of Sussex, to whom I lately referred for the decline of agues in his neighbourhood, has informed me, that genuine pleurisies are not seen there now as formerly; and Dr. Harrison of Horncastle has mentioned, incidentally, in different parts of an Essay on the rot in the sheep, that both agues and acute inflammation of the lungs are less common in Lincolnshire, than they used to be. From these facts, it may, I think, be safely inferred, that the present rareness of pleurisy in London is, in great measure, if not altogether, a consequence of the rareness of intermittents‡.

* P. 20.

† P. 131.

‡ It is remarkable, that Sydenham begins the cure of most diseases with bleeding. As it cannot be supposed, that advantage was not generally derived from this practice, I conclude, that a disposition to inflammation must have been then very prevalent, and that its removal was requisite, before the appropriate means

According to Sydenham, no disease was in his time more frequent than pleurisy. At present, a physician in considerable practice here may pass several years, without seeing a single legitimate instance of it*. The instances which have occurred to myself, in this place, of acute inflammation of the contents of the chest, have been almost solely peripneumonies, in which copious bleeding was less clearly indicated, and was attended with

for the cure of the different ailments could be properly employed.

* Dr. Willan, indeed, has, in his Reports on the Diseases in London, from 1796 to 1800, made frequent mention of pleurisy; but I believe, that he must have called diseases by this name, which differed considerably, in regard to the mode of treatment they required, from the pleurisy of Sydenham. My reason is, that I was physician in the same years to the Finsbury Dispensary, and saw, in consequence, patients who lived nearly in the same districts of the town, as the patients of the Cary Street Dispensary, the diseases of whom furnished Dr. Willan, as he mentions himself, with materials for two thirds of his Reports; and, among the patients of the Finsbury Dispensary, I never saw one having the symptoms of pleurisy, who required the loss of half the quantity of blood, that Sydenham says is almost always necessary for the cure of that disease in adults, namely forty ounces.

less benefit, than commonly happens in pleurisies; and one half, perhaps, of these instances, which have not been many, supervened to acute rheumatism.

It will no doubt appear as strange to many at the present time, as it formerly did to my master, Dr. Garden, that a disease generally supposed to be connected with debility, and in the cure of which medicines considered as strengthening are found useful, should be intimately allied with another, which is thought to arise from too great power, in one part of the system at least, and which certainly requires for its removal the employment of means, that greatly weaken the body. But many diseases excite states in us, which are different from those upon which they depend themselves, and thus effect their own cure. Without the existence, indeed, of such a power, diseases would almost always end only with life. Besides, the two diseases in question occur in their greatest force, at different seasons of the year, the intermittents in autumn, and pleurisy in the spring. It is probable, therefore, that the disposition to inflammation, which

is formed in the intermediate time, is intended, in some measure, as a cure of the disposition to ague formerly contracted, and as a guard against the further operation of its causes. Hence, therefore, may perhaps be derived, in part, the reason of the capacity of the negroes of South Carolina to resist the attacks of intermittents; as I have said, that they are much more liable to inflammatory diseases than the white inhabitants. It seems also probable, that the disposition to inflammatory diseases, in countries infested with ague, forms a part of the reason, why these give rise to fewer instances of pulmonary consumption, than others which are not so; since there is ground for thinking, that a disposition to acute inflammation, however generated, is opposed to that disease. For Mr. Kilgour, the author of the communication to Dr. Beddoes, already mentioned in this paper, respecting the exemption of the fishermen near Edinburgh from pulmonary consumption, says,* that "these people are peculiarly liable to pneu-

* Beddoes on Consumption, p. 53.

monic inflammation;" and several clergymen in the Highlands of Scotland represent, in their reports to Sir John Sinclair, that pleurisy sometimes prevails in a very great degree in their parishes*.

Quinsey is another inflammatory disease, which seems to prevail more in places infested with agues, than in those which are free from them. For Mr. Weekes has acquainted me, that, in the country near to him, this disease has become rare along with pleurisy; and Sydenham has several times enumerated it among the vernal epidemics, which used to occur in London, whereas at present, a case is very rarely seen in it, that requires the treatment by bleeding and purging, in the degree which he recommends. Dr. Willan, in his account of the diseases of London during five years, speaks only once, I believe, of inflammatory sore throat; and I have myself scarcely ever met with a case of it here, which seemed to me to require a single copious bleeding.

I have not yet ascertained, whether acute rheumatism is more prevalent in aguish

* See p. 510 of this volume,

countries than in others; but, after comparing what Sydenham has said respecting this disease, with what I have observed myself, I conclude, that it was more frequent during his time in London, than it is at present. Dr. Willan says, that rheumatism seldom occurs in London under its genuine inflammatory form. On the other hand, chronic rheumatism has probably increased much since Sydenham's time; for it often happens, that nearly half of the male adults, who apply now for admission into St. Thomas's Hospital, labour under that disease*. Of these, many are in the prime of life, who have

* Patients are ordinarily admitted into St. Thomas's Hospital, only one day in the week; but urgent cases of disease, among which those of fever are included, are received at all times. Dr. Woolcombe, therefore, has committed a considerable error in saying, that fevers are excluded from the London Hospitals, p. 91. Dr. Fordyce, indeed, mentioned, many years ago, in the beginning of his first dissertation on fever, that persons labouring under that disease are admitted into St. Thomas's Hospital, in preference to most other patients; and I believe, that a similar practice obtains at all the London Hospitals. For I have ascertained with respect to all of them, except two, that, this is the case, and I have no reason for supposing, that those two differ, in this respect, from the others.

never been affected with acute rheumatism, and are, to all appearance, free from lues venerea.

Gout, in its genuine form, is certainly to be regarded as an inflammatory disease. Dr. Chalmers, in his account of the diseases of South Carolina, says, that he is persuaded, that gout is more common in that country, where, as was formerly mentioned, intermittents are very frequent, than in any other in the world, in proportion to the number of its inhabitants; and Dr. Tavares,* the archiater of Portugal, observes, generally, that gout is more prevalent in low and swampy districts, where intermittents are frequent, than in those which are elevated, and enjoy a drier air. In opposition to these facts, however, it will no doubt be maintained, that it appears by the Bills of Mortality, that gout increased in London during the last century, while intermittents diminished. But it may be said in answer, that the more general diffusion of wealth among its inhabitants, and the less use of bodily exercise

* I have seen only an account of his works in the London Medical Journal, No. 72.

by the rich, both of which circumstances took place in the course of that century, are, perhaps, sufficient to account for the difference, consistently with the observations of Chalmers and Tavares. Besides, there is more than common reason to distrust the Bills of Mortality on the subject of gout. For the deaths attributed by them to that disease, after having increased about fivefold between 1700 and 1806, decreased very considerably in 1807, and have still remained so few, in comparison to what they were shortly before, that their average number, during the last five years, is much less than a third of the average number of the five years immediately preceding, and is even less than that of any five successive years since 1716. I have not learned whether gouty families are, upon the whole, more or less subject to pulmonary consumption, than others; but I happen to know one family, the males of which are subject to gout, but have remained free from consumption, while several of the females of it, who were free from gout, have died of the other disease.

The inflammations, of which I have

hitherto spoken, occupy parts of the body, which are constantly in contact with the atmosphere, and, when other circumstances are similar, occur most frequently in those countries, and in those seasons, which are subject to the greatest variety of temperature.

With respect, however, to the inflammations of parts, which are more deeply seated, I do not find any clear evidence, that they appear oftener in countries, which are much subject to agues, than in others which are free from them. Acute inflammation of the liver, for instance, is not mentioned by Sydenham, nor, I believe, by Morton or Willis. Hoffman almost denies its existence; and yet all these authors were well acquainted with intermittents. It occurs, indeed, often in hot countries, where intermittents are common; but, even in these, its frequency is not at all proportional to that of intermittents, or indeed to any circumstance, which has hitherto been observed. If I were to judge from what I have seen myself, I should say, that acute inflammation of the liver is at this time a very rare disease in London.

Again; acute inflammation of the intes-

tines, when not produced by chemical or mechanical means, is, I believe, no where a frequent disease; but, if my supposition be right, that deaths from this cause are inserted under the head of Cholic, in the Bills of Mortality, they were probably more numerous in London, when intermittents were common, than they are at present. This disease seems to be frequently confounded, even by the best authors, with other disorders of the intestines. Thus Van Swieten, in describing it, copies a great part of what Sydenham has said upon bilious cholic; and Willan * speaks of it as a disease of the autumn, certainly not the most common season for original acute inflammations.

I proceed, in the last place, to make some practical application of the facts respecting pulmonary consumption, which were mentioned in the first part of this paper.

The influence of climate, in giving origin to consumption, is probably often exerted,

* Reports, p. 167.

long before any symptom of the disease can be discovered. Thus, the only white adults, whom I recollect to have seen attacked with consumption in South Carolina, were born in Britain, and went from it to the former country when young men, several years before the disease appeared; and though, as I formerly said, the natives of warm climates, when sent hither in childhood, are more apt to fall into that disease than ourselves, yet, if I can trust to the accuracy of my own observations on this point, for I have not seen it treated in books, such of them as remain at home, till they have acquired their full growth, are afterwards less liable to become consumptive in this country, than our own people of similar ages. When, therefore, parents have reason to dread * from past experience, that their children are likely to prove consumptive, and are consequently eager to make every

* There appeared in the obituary of the Gentleman's Magazine, for May, 1798, the following article; "Died of a consumption, aged eighteen, Henrietta Stile, daughter of Mr. G. Stile, of Frome, the seventh daughter of the family, which has died of that complaint, in a few years."

attempt in their power to avert this misfortune, they should be told, that measures of prevention, to have the best chance of success, ought to be very early adopted. Parents thus situated, might, therefore, be advised to send their children to school, in the fenny districts of the counties of Lincoln or Cambridge*; and, if their fortunes

* It may be objected, that, as I have ascribed consumption in young persons, in great measure, to weakness, the sending them to fenny districts will not remove the cause, and therefore not prevent the consequence. To this I answer, that, as weakness does not give rise to consumption in hot countries, these two states must be connected by some intermediate one, the occurrence of which being hindered, by any means, the last state, consumption, will not follow.

There seems little doubt, but that Willis alludes to the fenny districts of England in the following passage. "Communis observatio est, regiones istas, sive in Anglia, sive in Belgio, ubi cespite ignes nutriuntur, et odorem valde sulphureum spirant, tabem rarius infestare; quinimo loca ista phthisi obnoxiiis, aut ea laborantibus, maxime salubria, et non raro sanativa, existere." De Med. Operat. Sect. I. Cap. VI. The author had shortly before said, apparently from theory, "aer humidus, *palustris*, cum nulli salubris, ita tussientibus plurimum infestus, existit," and therefore, I presume, thought himself obliged to account for a contrary fact, which he did by attributing it to the sulphur of the fuel. This theory, however, he probably derived from

be small, to place them afterwards with persons living in the same or similar districts, for the purpose of being taught some art or profession. Youths of better condition might go from those districts to Leyden, to prosecute their studies there, or to counting-houses in Amsterdam or Rotterdam, if they be intended for merchandize. In this way, might be passed, without any considerable sacrifice of time or money, or the omission of proper instruction, the period of their lives, which is most exposed to receive impressions from climate favourable to the production of pulmonary consumption, that which intervenes between the ages of seven and twenty years. Afterwards, they who have followed the plan, which has been pointed out, will probably be as secure against the attacks of that disease, as the generality of their countrymen.

the ancients, for both Galen and Procopius mention, that consumptive persons used to be sent to the neighbourhood of Vesuvius, for the purpose of breathing a sulphureous air. See Van Swieten, Tom. IV. p. 97, and Friend's Hist. Med. p. 83, 12mo. On the other hand, foreigners have often ascribed the frequency of consumption in this country to the sulphureous vapours from our sea-coal fires.

If consumption has actually come on, residence in a fenny country may still be recommended, if it has not been already tried, without success, as a measure of prevention, since the testimony of Mr. Leslie* places beyond doubt, that this disease has been frequently removed by such means.

Should it, however, be thought preferable to send a consumptive person to a warm climate, it ought to be remembered, that Lisbon, Nice, and Naples,† have been held by English physicians, who visited them, as places not the best adapted for the cure of his disease. When such a person, therefore, goes to Portugal, instead of residing in Lisbon, or on the neighbouring high ground, he should imitate the practice of the natives, and pass into the low and swampy country of Alentejo.

Madeira, from the mildness of the winter there, must be a fitter place of residence for the consumptive during that season, than any part of this country; but, as it probably gives origin itself to many consumptions‡, its climate cannot be regarded as well adapted

* See p. 490 of this volume.

† See p. 494, and 495.

‡ See p. 503.

for the cure of those, which have arisen in other places.

A voyage to the West Indies, and a residence there for several months, would afford consumptive persons a better prospect of recovery, than any of the means, which have been hitherto mentioned. Of the English possessions there, Jamaica, and the newly settled small islands, would be more likely to prove advantageous to them, than Barbadoes, or any of the other islands, which have been long cultivated, and have the reputation of being healthy.

The danger, however, of contracting other diseases in the West Indies will always deter many persons, from going thither for the cure of consumption. The same danger does not exist, in an equal degree, in the hot climate of Egypt, since its chief disease, the plague, may be easily avoided. As this country, therefore, is represented as free from pulmonary consumption*, the ancient practice of sending thither persons affected with that disease might be revived, with considerable advantage to them. Its

* See p. 496.

many wonderful relics of ancient art, and magnificence, would also, by affording amusement and instruction to our well-educated young countrymen, tend to relieve that languor of mind, of which they often complain, in those places to which they are now commonly sent, on account of their health.

In Egypt, indeed, as well as in other countries which have been mentioned, those who are sent to them, for the prevention or cure of consumption, will, no doubt, be liable to be attacked with intermittents. But, although the latter diseases, when very prevalent, are a greater national evil, than pulmonary consumption ever is any where, both by causing directly, or remotely, the death of more persons, and by withholding, during life, a much greater quantity of labour from the service of the country, yet their injury to individuals is to be estimated very differently. For intermittents, in proportion to the number attacked by them, destroy but few, whereas consumption almost constantly proves fatal, if the persons affected with it remain where they contracted it.

Little objection should therefore exist, on the part of the consumptive, to removing into a low and swampy country, were an attack of an ague there even certain, and still less when it is considered, that those, who labour under consumption, are less readily seized with ague than the healthy, and that a mere disposition to the latter disease is, probably, often sufficient both to avert and to cure the former.

What has been said, however, upon the change of climate by the consumptive, is meant to be applied to those only, in whom their disease has made no considerable progress. Physicians have been often blamed, sometimes, I believe, justly, for recommending a fatiguing journey, or sea voyage, to persons in consumption, of whose recovery no expectation was entertained. On the other hand, if a change of climate be strongly desired by such a person, and nothing in the state of his affairs renders it improper, it will require more firmness, than a physician ought to possess, to destroy, by a declaration of the truth, the chief source of pleasure which the sick man enjoys. The

integrity and prudence of the physician will be best shewn, either by never speaking of this measure to his patient, if he does not believe that it may be servicable, or, if he thinks that it may prove so, by recommending its adoption, when he first sees him, or very shortly afterwards. But it appears to be no just objection to sending the consumptive to warm climates, that the lives of such persons are apparently sometimes shortened by it, since a very small chance for recovery ought to be held of more importance, than a great probability, that a life of suffering may be extended a few months.*

* Though it does not properly fall within my plan, I shall say, notwithstanding, a few words respecting two places in this country, of great resort for the consumptive, the Hot Wells near Bristol, and the sea-coast of Devonshire.

The city of Bristol was noted, according to Bernet, nearly two centuries ago, for the frequent occurrence in it of consumption; and, if reliance can be placed on its Bills of Mortality, more die there at present of the same disease, than in any other part of Great Britain. There seems, therefore, no good reason for supposing, that the high ground in its neighbourhood is more favourable to the consumptive, than the country about London; and little advantage is expected now by physicians from any peculiar quality of its waters. In

The last circumstance relating to the consumptive, upon which I shall speak, is the time of year, at which they should remove, either to a warm climate, or to a fenny country. Dr. Fothergill* was desirous, that such persons should live as constantly as possible in an air only moderately warm, and therefore advised them to pass the summer in the northern parts of our island: and Dr. Heberden † says, that the consumptive will seek in vain for a temperature of air.

regard to Devonshire, it was formerly stated, that consumption is, probably, as frequent in its chief town, Plymouth, as in London. The country parts of the county, consequently, cannot be thought to differ materially from those of Middlesex, with respect to their aptitude to give origin to consumption.

I do not however affirm, that no advantage is derived, by the consumptive, from going to Clifton or Devonshire. The increase of hope from the adoption of new measures, the removal from scenes of care and anxiety, and the systematic attention which may be given to the health of the body, when its recovery is the chief object of pursuit, are, with similar circumstances, sufficient to produce some good effect. But this probably, is not greater, than what would be experienced in Middlesex, by a person, who had become consumptive in Devonshire, or in the neighbourhood of Bristol.

* Works in 4to. p. 316. † Comment. p. 326.

more favourable to them, than that which Great Britain affords, during the four summer months; and immediately after recommends, what does not strictly coincide with this observation, as far as time is concerned, that they should not change this country for a warmer one, from March to October. If such counsels are given merely for the purpose of palliating the sufferings of consumptive persons, they may be highly proper; but, if the object in view be to remove their disease, I must regard them, notwithstanding the great authorities by which they are supported, as not well-founded. For, as fewer consumptions arise in very hot countries, when other circumstances are similar, than in those which are less hot, it follows by analogy, the only species of argument we can yet employ here, from the want of sufficient direct experience, that the summer of a cool country must be less favourable to the entire recovery of a consumptive person, than that of a warm country. Again; if my opinion be just in regard to the manner, in which fenny and swampy districts are useful to the consump-

tive, it is a necessary consequence, that such persons should be sent to them in the summer and autumn, since at those times the disposition to ague is most readily, if not solely, excited.

In conclusion, I take the liberty of mentioning, that, when I consider the number of the subjects, which have been touched upon in the course of this paper, and the scantiness of the information which could be obtained upon many of them, the inference immediately occurs, that errors of various kinds must exist in it; but that I trust, that none of these will be found to invalidate any practical deduction, which I have ventured to make.

**XXXIII. Case of a Collection of Pus in the
Cavity of an unimpregnated Uterus. By
JOHN CLARKE, M. D. Read February 4,
1812.**

THE following Case is so remarkable, in many of its circumstances, that I trust it will be thought worthy of the attention of the Society.

On the 12th of January, 1812, I visited Mrs. A. B. about sixty-five years of age, who had ceased to menstruate many years. A few weeks before I saw her, she had informed Mr. Brande, who attended her, of her having a small sanguineous discharge from the pudenda. The discharge was not attended by any pain, but, as she was rather heated, he gave her occasionally some sulphate of magnesia in infusion of roses, from which she considered that she experienced relief. After this she had, as she informed me, a discharge, at first like fluor albus, and small, but which afterwards became of a brownish colour, offensive to the smell, and greater in

quantity. A very short time before I saw her, she had experienced a more considerable sanguineous discharge, but without any pain.

She readily agreed to an examination per vaginam. I found the os uteri rugged, and much harder than usual. The cervix was of the common length, but was hard to the touch. From the upper part of the cervix, a tumour bulged out in all directions, so as to occupy nearly the whole space from the os pubis to the os sacrum. She was of a spare habit of body, but this was natural to her. Her tongue was not foul, and there was nothing remarkable in her pulse. There was no unnatural heat of her skin; she had not been attacked by any shivering; and she passed her fæces and urine as in health. To the time of my first seeing her, she had frequently walked in the open air, and had pursued at home her accustomed occupations; and afterwards, even to the day on which she died, she walked about her house, without pain, or inconvenience.

Considering all the symptoms, and the

patient's time of life, a favourable termination of the case was not to be expected. Only such measures, therefore, were adopted, as were calculated to remove the irritation arising from the discharge.

As there were no urgent symptoms in the case requiring constant attendance, I saw her occasionally only. On my second visit, which was on the 29th of January, she described her situation as being more comfortable: the discharge was diminished in quantity, and was become less offensive, and less irritating.

Early on the 31st of January, she sent in haste to Mr. Brande. When he arrived, she told him, that, after passing a very good night, upon waking she was suddenly seized with violent pain in the lower part of the abdomen, and a sensation as if something had suddenly given way there, and that she was still in great pain. She had passed her urine at four in the morning; after the attack of pain, however, she could pass no more, but had a frequent desire, attended with uneasiness, to empty the bladder. She

was now in a state of extreme weakness and faintness, like a person nearly expiring, having a small thread-like pulse, great paleness of the surface of the body, and coldness of the extremities. Mr. Brande directly administered some cordial remedies, from the effect of which her pulse was improved, and she recovered in a considerable degree from the state of faintness, in which he had found her. In the middle of the day I saw her, and drew off from the bladder about half a pint of urine of a natural colour; after which she said that she felt more easy. Her pulse at this time was frequent, but not very feeble; her voice was strong, and her faculties entire. Her arms, which lay out of bed, were cold, but her legs and feet were warm; in the face, she was paler than I had seen her before.

After I left her, she gradually became weaker, and in the evening of that day she died, having preserved the faculties of her mind nearly to the last.

Before she died, she desired that her body might be examined. The examination was accordingly made on the 2d of February.

On opening the abdomen, about seven or eight ounces of a most offensive purulent fluid were found in its cavity. When this was cleared away, the part of the small intestines, which presented itself, shewed very strong marks of preceding inflammation, and their different folds were connected by coagulable lymph, which appeared to have been lately effused. There were also some adhesions, which had been of longer standing. The extremity of the broad ligament of the uterus on the right side was pretty firmly connected to the peritonæum, in such a manner, that the lower part of the small intestine, in going to the head of the colon, passed under the Fallopian tube, so that a strangulation of the gut might have taken place at that part.

On raising the intestines to expose the contents of the pelvis, a tumour appeared in a gangrenous state, with an opening in the upper part of it, through which, on the slightest pressure, a quantity of offensive pus issued, similar to that which was found in the cavity of the abdomen. The bag containing it appeared to be in contact with the

quantity, which still remained in it, probably about five ounces.

This matter being removed, the bag was discovered to be the uterus in a distended state. Both its external and internal surfaces were of a very dark colour, exhibiting nearly the appearance of a mortified part. On the internal surface, there was an appearance like half coagulated lymph, but there were no traces of any cyst, so that the fluid was contained in the cavity of the uterus itself. The internal surface of the uterus had a honey-comb-like appearance. The orifice between the cavity and the cervix was closely contracted, so as not to have allowed the contents of the uterus to be discharged through it.

The circumstances worthy of observation in this case are ;

1. That so much inflammation should have existed in the cavity of the abdomen, as to have firmly connected the extremity of the broad ligament to the peritonæum opposite to it, and that a very active state of inflammation of the intestines should have more recently occurred, with effusion of

coagulating lymph, so as to connect the convolutions of them to each other, without either having been attended with pain.

2. That so large a quantity of purulent matter should have been formed in the cavity of the uterus, (that found in the abdomen having evidently proceeded from the uterus) amounting to twelve ounces at least, without any preceding marks of the presence of inflammation.

3. That, as there was no cyst in the cavity of the uterus, the contraction of the cervix should have been sufficient to prevent the exit of the fluid, as the cervix was readily pervious to a probe after death.

4. That the uterus, which in many cases of disease, as in common inflammation of its substance, in that species of inflammatory action which takes place in painful menstruation, in scirrhus and in cancer, is so very susceptible of pain, should have suffered so much mischief and derangement of structure without giving the slightest sensation of pain.

5. That, as the fluid escaped, the uterus contracted, so as to apply itself to the remaining contents.

6. That, as there was no communication between the cavity of the uterus and the vagina, the sanguineous and other discharges must have taken place from the cervix and os uteri, and the vagina.



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- Page 33, line 3, from bottom, *for th, read the.*
— 39, line 1, from top, *for usua, read usual.*
— line 3, from bottom, *for harge, read charge.*
— 130, line 5, from top, *after use, add of.*
— 135, line 4, *for om, read from.*
— 411, last line, *for flect, read effect.*
— 441, line 5, from top, *for plian, read plain.*

